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THE COMMAND AND GENERAL STAFF SCHOOL QUARTERLY

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Number 69

THE COMMAND AND GENERAL STAFF SCHOOL QUARTERLY

REVIEW OF MILITARY LITERATURE

LIEUTENANT COLONEL P.R. DAVISON, *Editor*
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FOREWORD

The object of this publication is a systematic review of current military literature, through cataloging articles of professional value, in selected military and naval periodicals, in the domestic and foreign field.

Articles from foreign periodicals are treated by translations of titles and digests of contents; material of particular importance is covered more extensively in a section of "Foreign-language Articles."

A "Library Bulletin" Section lists books, recently accessioned, which are of particular significance.

This *Quarterly* is published as a guide to modern military tendencies and to inspire vigorous thought on the subjects treated.

The opinions expressed by authors are not necessarily official.

June, 1938

Second Quarter

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HAVE YOU READ

—?—

JAPAN DEFIES THE WORLD. By James A.B. Scherer
STRONG MAN OF CHINA. By Robert Berkov
CANADA, THE PACIFIC AND WAR. By William Strange
DESTINY OF A REVOLUTION. By Victor Serge
FIRST ACT IN CHINA. By James M. Bertram
SOLDIERS OF DARKNESS. By Thomas R. Gowenlock and Guy Murchie
TWO WARS AND MORE TO COME. By Herbert L. Matthews
THE DOLLAR. By John Donaldson
CAESAR IN ABYSSINIA. By George L. Steer
PROGRESS AND CATASTROPHE. By Stanley Casson
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THE SWEET CRY OF HOUNDS. By E.C. Somerville and Martin Ross
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THE SWORD AND THE ROSE. By A.W. Smith
NORTHWEST PASSAGE. By Kenneth L. Roberts
TRAINING HUNTERS, JUMPERS, AND HACKS. By H.D. Chamberlin

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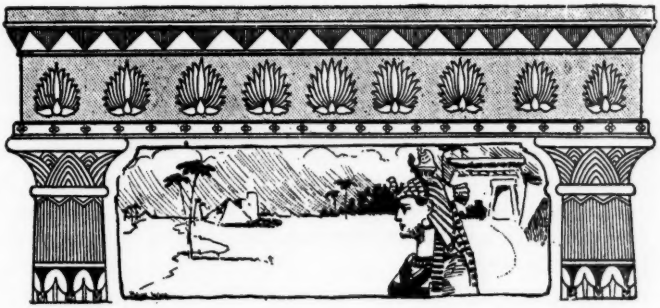
Major B.R. Legge: *Revue d'Artillerie* (October, November 1937).

Major T.R. Phillips: *Revue Militaire Suisse* (October, November, 1937)

Major R.G. Tindall: *Revue d'Infanterie* (October, November, December 1937); *Revue Militaire Générale* (October, November, December 1937).

Captain G.R. Townsend: Original Study.

Major L.K. Truscott, Jr.: *Revue de Cavalerie* (November-December 1937).



THE FIRST BATTLE OF HISTORY

BY

CAPTAIN GLEN R. TOWNSEND, Infantry

INTRODUCTION

"Is there anything of which it may be said, 'See, this is new.' It hath been already of old time which was before us. . . . and there is no new thing under the sun."— Ecclesiastes i:9-10.

Writers on military history have usually begun with the campaigns of Alexander or, at most, with those of his Greek and Persian predecessors. This has been of necessity for, although there is ample evidence that man has waged war since the first primitive society came into existence, he has left but meager record of his earlier struggles. The bare names of battles and their outcome comprises our only information of many conflicts of the ancient world which marked the rise and fall of nations. Doubtless others of equal or greater importance have passed completely from human knowledge. Within the last three or four decades, however, vast additions have been made to modern knowledge of the ancient world. Study of the long known remains of the earliest civilizations of the Near East has reached a firm scientific basis, while recent excavations and discoveries have developed a great mass of new material. Military history, no less than history in general, has been enlarged and enriched. Although the fact has escaped the attention of most military writers, there is today ample material available for placing the

beginnings of military history in the period of the Egyptian Empire, a full millenium before the age of Alexander.

Of all the campaigns and battles which occurred in the long period of Egyptian supremacy in the ancient world, the records of only two have been preserved in sufficient detail to warrant their study from the military viewpoint. The first of these is the campaign and battle of Megiddo in which Egypt, about 1479 B.C., defeated and destroyed a confederacy of Syrian states. This was the first Asiatic campaign of Thutmose III, and so remarkable was the leadership displayed by the Pharaoh that it bears a resemblance to the first campaign of Napoleon in Italy. Taken in connection with at least fifteen additional campaigns, all of them successful, it marked the advent of the first great military commander in the history of the world.

The accounts of this battle which have come down to modern times are not voluminous, nor were they intended for the instruction of the future student of the art of war. They were written rather to glorify the deeds of a king, and the skill of

EGYPTIAN INFANTRY 1400 B.C.

the modern historian is tested in reconstructing from the meager data the plans of commanders and the movements of armies. Fortunately the records have had the attention of one of the great modern historians. To Professor James Henry Breasted, director of the Oriental Institute of the University of Chicago and to Harold Hayden Nelson, one of his pupils, the military student is indebted, directly or indirectly, for the detailed information now available.

If at times the data seem inadequate, and if we cannot follow the movements of these ancient armies as closely as we desire, it may be well to recall that we are dealing with events which happened more than three thousand years ago. When Thutmose III made his decision to cross Carmel Ridge by the direct road to Megiddo the world, as known to history, was very young. Its people were yet living in the age of bronze. The children of Israel were yet residents in the land of Egypt awaiting the birth of that Moses who was to lead their exodus. The siege of Troy by the Greeks and the ruse of the wooden horse were three centuries in the future. The seven hills of Rome were bare of human population and Alexander was not to rise to world power for a thousand years.

The Historical Background

> "History is the mighty Tower of Experience which Time has built amid the endless fields of bygone ages."—Van Loon, in Introduction to *The Story of Mankind.*

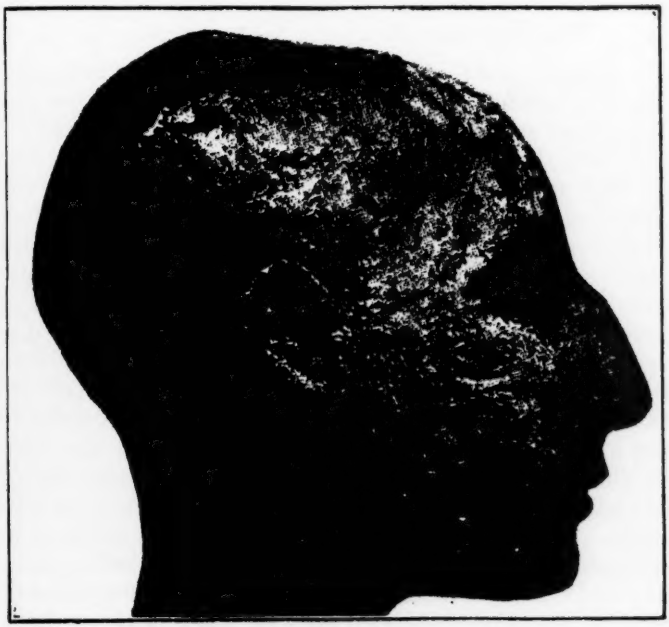
The history of the Egyptian Empire begins with the defeat and expulsion of the foreign Hyksos who had held the country in subjection for some two centuries. It has been noted that adversity often breeds qualities of courage and aggressiveness in nations as well as in individuals, and it is not without reason that ancient Egypt threw off the yoke of the invader to enter, almost immediately, upon the period of her greatest influence in world affairs. Prior to about 1800 B.C., which is the date historians set for the conquest by the invading "Shepherd Kings," the development of Egypt had been mainly internal, accompanied by a gradual extension of territory at the expense of the Libyan peoples on the west and the Nubian tribes on the south. In Asia she had been content to pursue a policy of aloofness. To the north and east her influence beyond her natural boundary, the Isthmus of Suez, was slight, extending only to the

Sinai Peninsula and possibly to some of the cities of southern Palestine.

With the expulsion of the Hyksos, about the beginning of the sixteenth century B.C., Egypt abandoned her former policy of isolation and set about the building of an Empire. This change in national policy, which influenced all her subsequent history, was due, no doubt, to several factors. Important among them may be mentioned the unification of the national spirit during the long struggle against the invader; the virtual extinction of the old feudal princes, with a consequent increase in the power of the Pharaoh; and, not of least importance, the development of the military system which placed at the command of the rulers of the XVIII Dynasty the necessary instrument with which to carry out the new policy of expansion — an efficient army.

STATUE OF THUTMOSE III

Little is known of Egypt's first efforts to extend her power into Asia. But in the reign of Thutmose I (1540 B.C.), the third of the new line of Pharaohs, her armies marched as far as the Euphrates, bringing all of Palestine and Syria into at least nominal subjection. Had the immediate successors of Thutmose I continued his policies with equal energy and intelligence it is probable that the Egyptian power might have been firmly established at least as far as northern Syria. Unfortunately for Egypt, upon the death of Thutmose I there ensued a period of internal dissention, the first struggle in history, perhaps, between imperialists and isolationists. At any rate, a generation passed before another Egyptian army marched into Syria. In the meantime Egypt was ruled by the first great woman of history, Hatshepsut. The queen, though of a strong and aggressive character, appears to have been more concerned with internal than with foreign affairs. The wealth which the conquests of her father, Thutmose I, had brought to Egypt enabled her to build temples and improve the land, but the



THE MUMMY OF THUTMOSE III

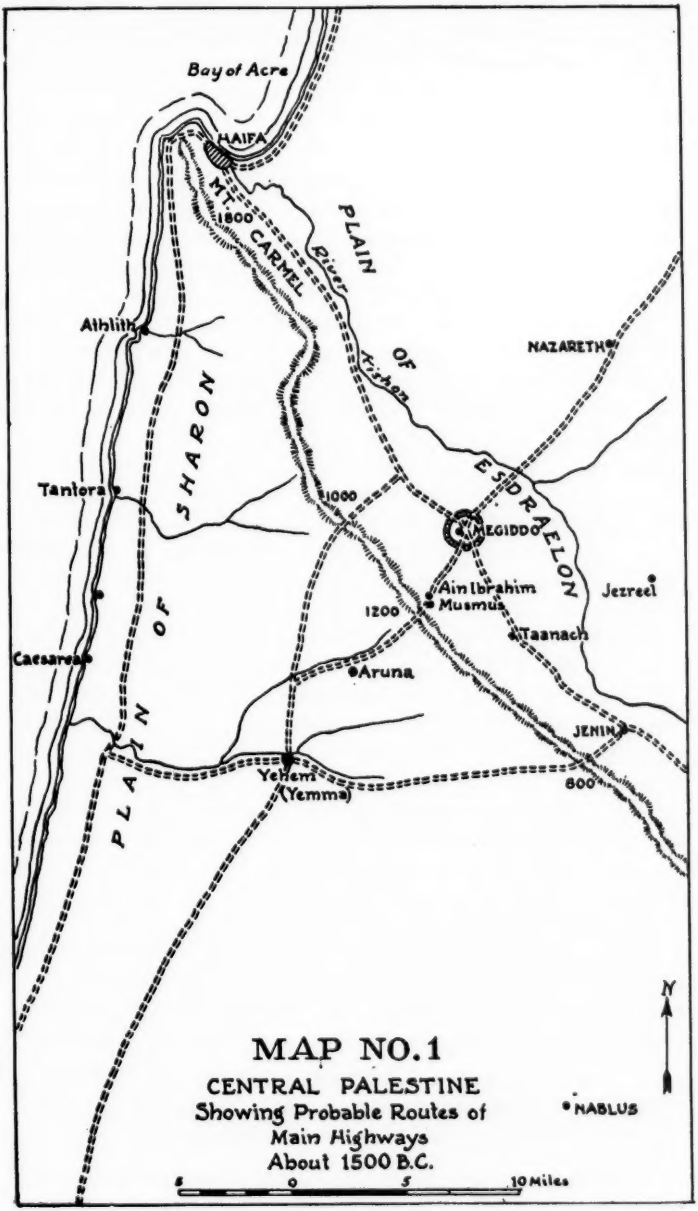
consolidation of the Empire languished until the rise of Thutmose III to power in 1501 B.C.

Thutmose III was the first great military commander to emerge into the light of history. As a youth he became a minor priest in the great temple of Karnak at Thebes. The influence of his personality is apparent in the fact that he soon won the support of the priests to his cause and through their influence he became co-ruler of Egypt with his half-sister, Hatshepsut, whom he married. For reasons which were probably concerned with the legitimacy of the succession Thutmose played a subordinate part in the government until the death of the queen about 1480 B.C. As soon as he grasped the full power of the Pharaoh he set about to remedy conditions in Syria. The situation there can be described in his own words: "Behold, from Yeraza (in northern Judea) to the marshes of the earth (i.e., the upper Euphrates) they had begun to revolt against his majesty."

The Military Geography of Palestine and Syria

"And he gathered them together into a place called in the Hebrew tongue Armageddon."— Rev. xvi:16.

Palestine and Syria have been likened to a corridor joining the continents of Africa and Asia. With the Mediterranean as the western and the desert as the eastern boundary the corridor is from eighty to one hundred miles wide and extends some four hundred miles north and east from the Isthmus of Suez to the upper reaches of the Euphrates. Palestine, the southern half of the corridor, is naturally divided into two longitudinal strips from north to south — the narrow maritime plain and the wider strip of hill country to the east. The coastal plain varies in width from fifteen to twenty-five miles at the south, in the region of Gaza where it emerges from the Sinai desert, and narrows toward the north. It is entirely effaced for a space by the Carmel Ridge, an off-shoot of the Judean Hills, pointing like a giant finger toward the northwest with the modern city of Haifa at the tip. The passage around the western side of Mt. Carmel is said to be no more than two hundred yards in width. South of Carmel Ridge the coastal plain is known in Biblical literature as the Plain of Sharon, while to the north and east it is called the Plain of Esdraelon, the Armageddon of Revelations. Along this plain since the dawn of history have traveled the caravans of peace and the armed forces of war, en


Bay of Acre
HAIFA
MT. CARMEL
1800
PLAIN OF Kishon River
NAZARETH
Athlith
PLAIN OF SHARON
Tantura
1000
MEGIDDO
ESDRAELON
Jezreel
Ain Ibrahim
Musmus
1200
Taanach
Caesarea
Aruna
JENIN
Yehem
(Yemma)
800
N
MAP NO. 1
CENTRAL PALESTINE
Showing Probable Routes of
Main Highways
About 1500 B.C.
NABLUS
5 0 5 10 Miles

route between Egypt and Asia. It is the bridge which unites the two continents because the Judean Hills, the Jordan Valley, and the desert beyond are utterly unsuited for the grand movements of either peace or war. Moreover, it is a region of great fertility and so has its own attraction for both commerce and armies.

Carmel Ridge rises from the plain to a height of 1,800 feet at Mt. Carmel, near the seaward end, slopes to about 800 feet elevation at its middle portion near the modern town of Jenin, and rises again to 1,500 feet where it merges into the Judean Hills farther south. Like a rampart raised by the Creator it stands athwart the main route of communication between Palestine and Syria. In ancient times, as now, there were three main roads from the Plain of Sharon across Carmel Ridge to the Plain of Esdraelon. A fourth, the sea road followed the plain around the northwestern end of the ridge by the narrow space mentioned above. The three roads which crossed the ridge all started from the vicinity of the modern village of Yemma. The southernmost sought the path of least resistance. It crossed at the lowest elevation of the ridge and emerged into the Plain of Esdraelon in the vicinity of Jenin, near the site of the ancient Jezreel. The second, the most direct, crossed by way of the narrow pass now known as Musmus and descended upon the plain about halfway between Jenin and Haifa. The third utilized a pass further to the north. These three roads were crossed by another which skirted the Plain of Esdraelon parallel to the ridge and united the cities of Phoenicia with Samaria and Jerusalem.

On the southern edge of the Plain of Esdraelon, hard against Carmel Ridge where the middle road comes down from Musmus pass, there stood in the fifteenth century B.C., as it had probably stood for several centuries before, the walled city of Megiddo. Strategically placed to command the road through the pass, and also the road which paralleled Carmel Ridge on the north, Megiddo was undoubtedly one of the most important cities of northern Palestine at this period and for many years after.

The Military System of Egypt and Her Asiatic Foes

"An army should be every day, every night, every hour, ready to offer all the resistance of which it is capable. . . ."— Napoleon.

Never of a warlike nature, the citizen of ancient Egypt was, nevertheless, an excellent soldier when well trained and ably

led. Under the earlier Pharaohs of the XVIII Dynasty both these conditions existed. As a result the Egyptian army was at its best and left an impress on the Near East which persisted for hundreds of years. The prestige gained under Thutmose III was not dissipated until well into the classical period of Mediterranean history.

The army of the Empire owed both its morale and, to a large extent, its armament to the invasion of the Hyksos and the consequent long struggle to repel them. In the wars of liberation and in the ever recurring frontier clashes with the Libyans and the Nubians, tactics were tried and perfected, while

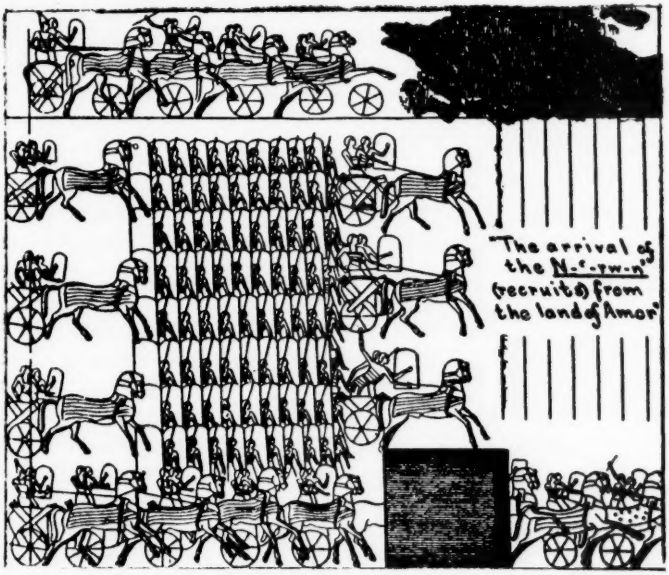
THE PHARAOH, IN HIS CHARIOT, LEADS THE CHARGE

leaders and men gained that experience in war which fitted them for the campaigns against powerful opponents in Syria. It was in frontier wars, perhaps, that Thutmose III gained the knowledge of the art of war and leadership which he displayed at Megiddo on his first recorded campaign. The quiver was known in Egypt before the Hyksos period, but it was not until then that it came into general use by the army. The horse and the chariot were first brought to Egypt by the invaders.

Prior to the Hyksos conquest the Egyptian army had been feudal in organization. With the virtual extinction of the feudal barons, however, the army of the Empire became a professional one in which, at first, the Egyptian citizen was predominant. The sons of the old noble families and the sons of the Pharaoh himself constituted the officer class while the citizens of the middle class were glad to enroll in the ranks. Merit was recognized both by promotion and by awards, sometimes of insignia, but more often, probably, of booty, which were made by the Pharaoh in person immediately after an important battle or at the conclusion of a campaign.

The Pharaoh personally commanded the army in all important campaigns and as most of the records which have survived to modern times are those which were made to perpetuate the glory of the various rulers, we know but little about the achievements of the generals and subordinate commanders. There is evidence, however, that the command of considerable forces was sometimes given to members of the Pharaoh's staff. Successful generals are known, too, to have been entrusted with the military government of conquered territories. There was, as we shall see, at least an embryonic staff system with officers who advised and assisted the Pharaoh and upon whom he depended for information and the operation of the supply service.

The army consisted of two arms, infantry and chariotry. Mounted cavalry was as yet unknown, nor were camels or elephants used in the Near East until a much later period. The infantry was divided into two classes: spearmen equipped with five-foot pikes having broad bronze points, and with other weapons such as the axe and dagger; and archers. The spearmen were the more heavily armored, their protection consisting of a padded cap, which served as a helmet, a leather apron which protected the loins, and a buckler or shield of moderate dimensions. The archers seem to have had less body protection, leaving them free for the use of the long bows with which they were



RECRUITS FROM THE LAND OF AMOR

exceedingly expert, outclassing the bowmen of any other Near Eastern nation. The introduction of the quiver into the army gave the bowmen the ability to conduct archery "fire" by volley. Their renown persisted as a memory long after the Empire had been overthrown. The Asiatic infantry was armed similarly to the Egyptian but appears to have had better body protection including coats of mail. Possibly the latter was used only by warriors of higher rank or greater wealth. The Egyptian infantry was organized into platoons, each of which was commanded by an officer, but of the details of organization beyond this little is known. On the march it proceeded in a column of fours, officers marching in rear of their units in order to maintain march discipline. Trumpeters accompanied the officers.

Introduced but a short time before, chariotry quickly became the most important element of the armies of the Empire. The Pharaohs maintained great stables of the best horses to be obtained in Asia and new blood for breeding purposes was regularly introduced to prevent deterioration of the stock. Diodorus declares that in his time (first century B.C.) the foundations of one hundred stables, each capable of holding two hundred

horses, were to be seen along the Nile between Memphis and Thebes. The Egyptians modified the Asiatic chariot, seeking lightness, until, it is said, its weight was so reduced that it was possible for a man to carry his chariot on his shoulders. Its materials were oak, ash, and leather, with but little metal. Each Egyptian chariot carried two men, an archer and a shield bearer. The Hittites and other Asiatics placed three men in a chariot. Two quivers for arrows were fastened, on either hand, to the outer sides of the chariot and other weapons were carried as well. The two horses were controlled by reins which, in battle, were tied about the body of the driver.

The Egyptians appear to have realized the value of shock action and hence used their chariotry to charge the enemy. The weakness of the chariot for this purpose was its tendency to break down or upset when charging over rough ground; also its unsteadiness as a platform from which to use weapons with accuracy. These difficulties were in part overcome by seeking level, open ground for the charge, while the archer steadied himself by placing one foot over the front panel and on the pole thus improving his equilibrium. The proper handling of the chariot in this fashion required long training and much practice. Special army schools were therefore maintained under the Empire to which selected youths were sent at an early age. When, after several years of intensive training, they had become proficient in all that was demanded of them, each was provided with horses and a chariot at state expense. These they were required to keep in constant readiness for military use. Just what proportion of the Egyptian army consisted of chariotry it has not been possible to definitely determine. At the battle of Kadesh, we are informed however, that the Hittites had 3,500 chariots, with three men to a chariot, out of a total force of about 20,000 men. This gives approximately fifty per cent chariotry and we may suppose that the Egyptian army was similarly organized.

Supply and transport seems to have been well organized and suited to the conditions under which the army operated. Temple reliefs which survive from this period show each soldier receiving an allowance of rations before setting out on a campaign. This ration of grain he carried in a linen bag supplied for the purpose. On the march the army was accompanied by herds of cattle and sheep to be slaughtered as needed while foraging parties collected supplies from the country passed through.

Small four-wheeled carts, drawn by oxen or asses, carried the baggage and organizational equipment which included cooking utensils, smiths' and carpenters' tools. Thutmose III planned his campaigns well in advance and seems to have been the first to realize the value of naval power and water transport. He required subject cities to provide each its quota of supplies and to deliver it at Mediterranean ports. Here his fleet collected them. Sailing along the coast, abreast of the advance by the army, it constituted a line of communications which the enemy, whose seapower was inferior, could not interrupt. Before undertaking their most difficult campaigns the Pharaohs made sure of the safety of their base of operations by securing control, through treaty or capture, of the necessary seaports.

On the march the Egyptian army was billeted in the cities en route or, like the Roman army of many centuries later, bivouacked in fortified camps. The camp was always rectangular in shape, the length being twice the width. It was surrounded by a ditch, the earth from which was banked up to form a rampart faced with shields. Entrance to the camp was by a single gate where a bridge was placed across the ditch. A guard was stationed here and probably an interior guard patrolled the camp and protected the sleep of the Pharaoh. Due to climatic conditions in the theater of operations, and the fact that the campaigns in Syria were usually conducted during the dry season only, little shelter was necessary. The Egyptian soldier was accustomed to sleep in the open, but a tent was set up at one end of the camp for the Pharaoh, and perhaps his chief officers enjoyed this luxury also. Troops, horses, chariots, herds, transport carts and work shops crowded the remainder of the enclosed area. The scenes of camp life which, carved on temple walls, have come down to us, are typical of military bivouacs of all ages. Here a soldier cleans his equipment, there another repairs his chariot, while others sharpen lances, supervise the preparation of the meal, or drink from wine skins. The transport animals munch their forage while the baggage and equipment are piled about in apparent confusion but, no doubt, in a well established system.

For the march the army was organized into divisions, each of which was apparently a self-contained fighting unit with its proportion of infantry and chariotry and its own supply trains. The army usually marched in several columns, each of some 5,000 men. A body of elite troops, similar to the "household"

troops of modern European armies, accompanied the Pharaoh as a body guard. The army was able to maintain a rate of march of from thirteen to seventeen miles a day for a period of weeks which is in close accord with the marching capabilities of modern forces of equivalent size.

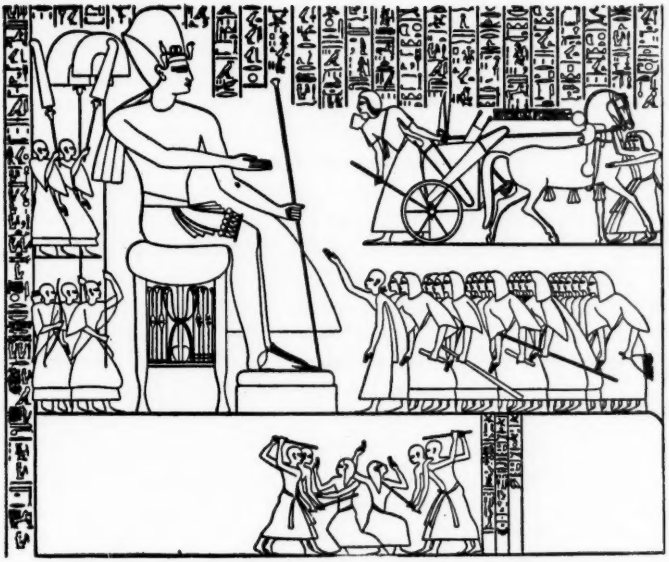
The strength of the armies of this period, both Egyptian and Asiatic, have been greatly exaggerated by historians who have relied on Greek writers of the classical period for their information. While the Pharaohs of the Empire probably had at their disposal more than 100,000 men these were never all called out at one time. Professor Breasted has sifted the surviving evidence and concludes that the armies of the Egyptian Empire and its Asiatic foes seldom or never exceeded 25,000 or 30,000 men and that it is probable they were usually much smaller. At the battle of Megiddo each of the opposing armies probably numbered not more than 20,000 and possibly not more than 10,000 in all arms and ranks. To this campaign, the first perhaps of seventeen conducted by Thutmose III, we shall now turn our attention.

The Battle of Megiddo

"The whole art of war consists in getting at what is on the other side of the hill."—Wellington.

Having become the sole possessor of the Pharaoh's power upon the death of the great queen, late in 1480 or early in 1479 B.C., when he was about forty years old, Thutmose III was able to take cognizance of conditions in Syria. There the revolt of the petty kingdoms was widespread. Prompt and drastic action was needed if Egypt was to retain the empire founded by Thutmose I. Thutmose III acted quickly. By the middle of April, 1479 B.C., he had concentrated an army of infantry and chariotry at Tharu, a frontier fortress near the site of the present city of Kantara on the Suez Canal. On the nineteenth of the month he was en route to Syria. Of the size of this army there is, unfortunately, no direct evidence. It certainly did not exceed 20,000 in all ranks and may have counted no more than 10,000 rank and file. As will be pointed out later, there is some indirect evidence that the number was between 10,000 and 12,000.

The road followed by Thutmose III was evidently that which has been used by armies moving to and from Egypt through all the subsequent centuries, including the British in 1917. Avoiding the salt marshes which fringe the Mediterranean



THE PHARAOH REBUKES HIS OFFICERS FOR THE FAILURE OF THE INTELLIGENCE SERVICE TO FIND THE ENEMY

just east of the present day canal, it crosses the northern extension of the Sinai desert and approaches the coast near the site of the modern town of El Arish. Thence, skirting the shore, it passes by Rafah to Gaza on the southern border of the Philistine plain. On April 28, the army was in Gaza, 160 miles north and west from Tharu. The rate of march was therefore more than seventeen miles per day, a remarkable, but by no means an improbable feat when the size of the force and the fact that the army was accustomed to desert travel are considered. There was, apparently, no opposition to Thutmose at Gaza. This city was too near the Egyptian frontier to become involved in the revolt and it is even possible that it was held by an Egyptian garrison. Hence, the Pharaoh, unlike the British in 1917, was not forced to wage battle at the end of the desert march in order to obtain water. Assured of its water supply, the army could well have crossed the desert by forced marches. However, it is possible that the account left by the Pharaoh refers only to the march of himself and his household troops. The bulk of the army may have left Tharu some days earlier.

The day of his arrival was the anniversary of his coronation and therefore a royal feast, but Thutmose paused in the Philis-

tine city only one night. On April 29 he placed the army in motion again, the route now leading northward along the coastal plain. Here, perhaps because of the necessity for reconnaissance, or perhaps to allow the supply service to levy on the villages en route, the rate of march was much slower. On May 9, ten days after leaving Gaza, the army bivouacked at Yehem, some eighty miles to the north. Of the exact location of Yehem there is some doubt. Petrie has identified it with the modern village of Yemma at the foot of the southern slope of Carmel Ridge, a few miles inland from the present port of Caesarea; and Nelson agrees that the town must have been in that vicinity.

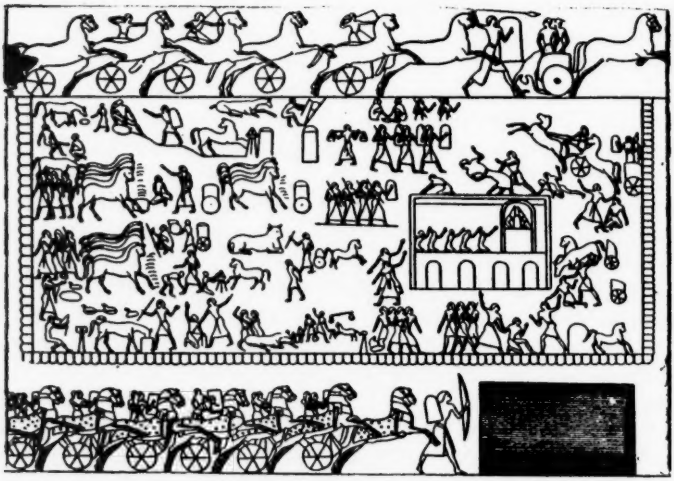
At Yehem, Thutmose III received the first definite information of the movement of the enemy. In his annals, he states: "Then were brought messages concerning that wretched foe." The substance of the "messages" was that the allied army, consisting of the chiefs and troops of many vassal states, under the leadership of the King of Kadesh, was now assembled at Megiddo where it was planned to give battle to the Egyptians.

Not only was Thutmose thus advised of the location and intentions of the enemy, but, as will be seen, he and his officers were thoroughly familiar with the terrain ahead of them. Whether they possessed this information as a result of active reconnaissance, or whether from local inhabitants, travelers and traders, we do not know. Neither do the annals tell us the exact source of the "messages" concerning the Asiatics. It appears probable they were brought in by scouts or spies who were dispatched ahead during the advance, or perhaps after the arrival at Yehem, for the army halted there three days and the delay may have been for the purpose of giving the intelligence agencies time to gather information. In any event we discern here, *for the first time in history*, the operations of an intelligence service, and we see the first recorded application in war of the principle laid down in Field Service Regulations that "military information is essential to the efficient preparation and execution of strategical and tactical plans" and that "it constitutes a vital element in the commander's estimate of the situation and decision."

Across the Egyptian line of advance to Megiddo lay Carmel Ridge. It could be avoided only by a march along the narrow sea road around Mt. Carmel to the site of modern Haifa, and thence into Phoenician plain far to the north of Megiddo. While the army would be engaged in making this long and toilsome turning movement, its rear and its communications with Egypt

would be open to attack from across the ridge. The plan to march upon the sea road does not appear to have been seriously considered. But, as has already been noted, three other roads, all starting from Yehem, cross the ridge and lead into the Plain beyond. The first and most northerly of these runs almost due north from Yehem. It passes through Baka, near Tell es-Samra and, according to the annals, "at the north side of Zefti." It debouches upon the Plain of Esdraelon near Tell Keiman, which marks the site of an ancient city six or seven miles north of Megiddo. Though fairly easy of ascent on the southern slope of Carmel Ridge, this road climbs to an elevation of 1,000 feet and descends steeply at its northern end. It leads rather into the Phoenician plain than into Esdraelon. Like the sea road, it tends to expose the rear of an army using it to attack from Megiddo or Jenin.

The second road is the same as the first as far as Tell es-Samra. It then turns sharply to the east and ascends the ridge by means of Wady 'Arah which at first is from one-half to three-quarters of a mile wide, flat and open. Four miles above the road junction is 'Ain 'Arah, the first of several springs along the way. Here a rough mule path breaks off to the northeast and eventually reaches the Plain of Esdraelon at Tell el-Aghbariyeh, a short distance north of Megiddo. Here, too, is the probable site of that Aruna of which we shall hear presently. Beyond 'Ain 'Arah, the main road continues its gradual ascent, although the wady narrows to one hundred yards in places. At the top of the pass, six miles from 'Ain 'Arah, is 'Ain Ibrahim, 750 feet above the former and about 1,200 feet above the sea. From the summit, the road winds through the hills and past the modern village of Musmus in gradual descent for a mile and a half. It then leaves the main valley, which becomes very narrow and broken and, turning to the right, mounts a considerable rise before continuing the descent along a smaller wady. This second wady gradually contracts. About a half mile above its mouth, it is only ten yards wide. The road, cut along the cliffs fifty feet above the wady bed, is even narrower. Beyond this narrowest point, the wady turns sharply and opens out to 200 or 300 yards where it emerges upon the plain at the site of the old Roman fortress of Lejjan, about three miles from 'Ain Ibrahim. Tell el-Mutesellim, the mound which marks the site of ancient Megiddo, rises from the plain about two miles from the wady opening.



A Typical Egyptian Camp

North of Yehem the third road, like the second is, for a distance, the same as the first. At Baka, it turns eastward to cross Carmel Ridge at its lowest elevation. The hills overhang it on but one side and it reaches its summit at 800 feet above sea level by gentle grades. This was the main caravan route from Philistia to Damascus and the usual route of travel in the winter months when rains turned the mountain wadies into torrents. It descends upon the plain at Jenin, which is near the site of ancient Jezreel, twelve miles south and east from Megiddo. Here it crosses the road from Jerusalem to Phoenicia. Northwest of Jenin, half way to Megiddo on the latter road, is the town of Tannach.

Such is the description which Nelson gives us of the roads as they exist today. And, as he has pointed out, we can be reasonably certain that they were the same in the time of the Egyptian Empire because they follow the courses marked out by nature, and occupy the only practicable passes across the ridge.

Thutmose decided to move by the middle road directly upon Megiddo. Calling a council of his chief officers, the Pharaoh announced his decision. The conference is thus described in the annals: "His Majesty commanded to council together with his victorious army, saying, 'Now that wretched

enemy of Kadesh, having come and entered Megiddo, he is there at this moment. He has assembled to himself the chiefs of all countries which were subject to Egypt as far as Naharin, . . . he says, it is reported, he is ready to fight against us there in Megiddo. Tell ye me that which is in your hearts.' "

To this invitation of the Pharaoh for his officers to speak their minds, the annals tell us that they replied: "How is it possible to march upon this road which becomes narrower? It is reported the enemy are there ready. . . . Will not horse go behind horse and man behind man likewise? Shall our advance guard be fighting while the rear guard is yet standing in Aruna without having fought? Now there are still two roads. Let our victorious Lord proceed according to the design of his heart therein, but do not cause us to march upon this impassable road."

In this scene which the records have preserved for us, the curtain of history rises to disclose, for the first time, a staff conference of a military commander and his subordinates. In the decision of the Pharaoh and in the objections to it which are urged by his officers we glimpse, also for the first time, an understanding by the soldiers of the ancient world of certain fundamental principles of war which ever since have been the subject of military study. That the discussion of the situation was a staff conference, rather than that refuge of the weak commander, a council of war, is evident from the fact that the Pharaoh opens it with the announcement of his decision. Only then does he invite the comments of his officers. Unfortunately, for our complete understanding, the king does not disclose fully the "estimate of the situation" which led up to his decision. But the circumstances are reasonably clear. The hostile army stands at Megiddo, twenty-five miles away across Carmel Ridge. Megiddo can be reached by any one of three roads. To go by the northern road involves a detour and delay. It exposes the army to attack from rear and might even allow the enemy to place himself across the Egyptian line of communications. But the foe does not, apparently, expect an advance by that route and to go that way favors surprise. The southern road is better than either of the others. It is not as long as the northern one and far less steep and narrow. The Asiatics expect the Egyptians to advance that way. Hence to do so will sacrifice any opportunity for surprise. The middle road is the shortest and most direct of the three. But it occupies a narrow pass through the

ridge where a small force may easily delay the passage of any army. It debouches directly upon Megiddo where the enemy waits. As they have taken no steps to block it, it must be because they do not believe the Egyptians will dare risk the crossing by so perilous a route. A rapid advance therefore may not be discovered in time to prevent the army from making a surprise descent to the plain.

In some such way must Thutmose have weighed the problem of the roads. But there was an even more important factor in the situation which seems to have determined his decision. The prestige of Egypt in Asia is great. The memory of her invincible armies under Thutmose I still persists. "Does His Majesty proceed upon another road because he is beginning to fear us? So they (the enemy) will think!" declares the Pharaoh. Only the direct road, narrow though it be, will serve Egyptian prestige. "In war," Napoleon is quoted, "the moral is to the physical as three to one." Thutmose recognized and acted upon the principle more than 3,300 years before the Corsican.

But if Thutmose seems to have been the only one to discern the decisive factors in the situation, this is not to say there was no reasonable ground for the objections to his plan voiced by his officers. The Aruna road is a narrow defile with all the disadvantages for a military force which the term implies. It was recognized as such in September 1918 when the Turks dispatched troops to block it; and when the British 4th Cavalry Division, by a forced march, anticipated them and emerged at Megiddo just as the blocking force arrived. But in 1479 B.C. the Asiatics were already at Megiddo. They could easily block the pass if they recognized the necessity for doing so. Or, if they preferred, they could attack the advance guard of the column as it debouched upon the plain and defeat it long before the main body could come to its assistance. "Will not horse come behind horse and man behind man?" asked the Egyptian officers. "Shall not our advance guard be fighting while our rear guard stands (idly) at Aruna?" The words are not those of the modern military text, but their meaning is not less clear.

Like great military commanders who have followed him, Thutmose perhaps considered the military ability of his adversary in reaching his decision. He was resolved to risk the defile. He would not be turned aside by the fears of his officers. The quality of his leadership is disclosed by the answer which he made them. An historian has called it "one of the most remark-

able utterances in all the range of ancient oriental records." Impatient with their attitude, his anger blazed. Let us picture the scene as the Pharaoh, rising from his seat and breaking up the conference, in wrath exclaims: "I swear, as my father Amon favors me, I proceed upon this Aruna road. Let him who will march upon the roads you have mentioned, and let who will follow me." The scene closes as the officers bow themselves from the royal presence with the words:"We follow your majesty as it befitteth a servant to follow his master." As the curtain falls we feel that we have stood in the presence of a leader.

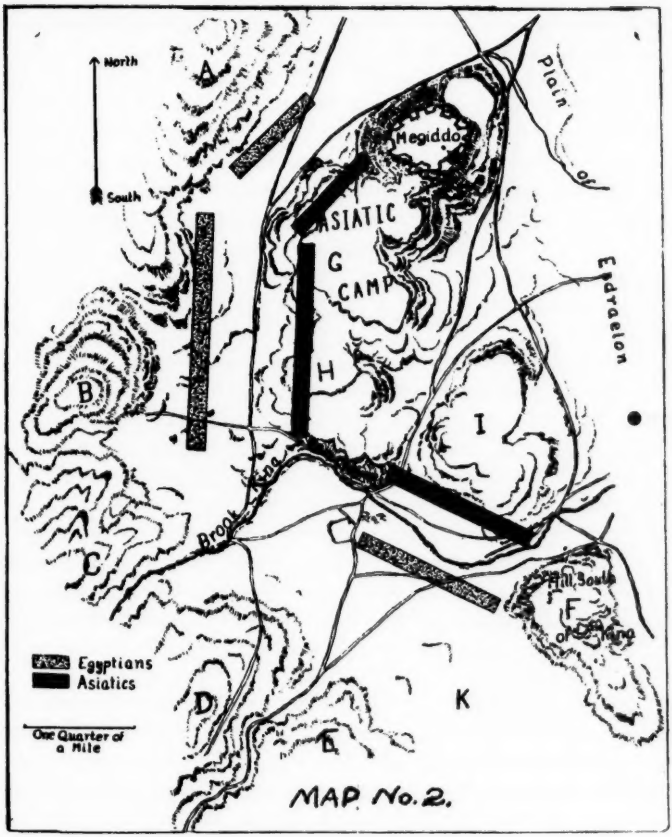
Without delay, Thutmose issued orders for the advance of the army by the middle road. Every man, we are told, was assigned his position, "horse behind horse," while the Pharaoh himself led them upon the narrow way. That night, 13-14 May, the army bivouacked at Aruna. Again we have reason to respect the military leadership and judgment of the king. First, having overruled his officers as to the route of march, he was careful to place himself in the post of danger at the head of the column. He "swore an oath," the scribe asserts, that no one should precede him through the pass. Historians have found that such statements often are not to be taken too literally. We need not suppose, then, that Thutmose actually served as the "point" for his army. A leader of his ability would realize the necessity for an advance guard and we shall only assume that Thutmose marched at the head of his main body where he could take immediate command should the occasion demand. At the same time the psychological effect of his action would not be lost upon his troops. Secondly, the movement to Aruna was admirably suited to the task which the army had before it. The distance from Yehem to Aruna was about thirteen miles; from Yehem to the exit of the pass at Megiddo about twenty-two miles. It would be impossible for the army to begin its march at Yehem and clear the pass the same day. But Aruna lies at the very end of the broad portion of the wady by which the road climbs to the summit of Carmel Ridge. It is supplied with excellent water and a camp ground adequate for the Egyptian army. Beyond Aruna the wady contracts rapidly and there are no bivouac facilities for an army until it debouches upon the plain before Megiddo. Unless the way were barred by the enemy, Thutmose could reasonably expect to complete the passage between Aruna and Megiddo in one day. The Egyptians, by advancing to Aruna on the 13th, had taken full

advantage of existing conditions and were in an excellent position for their contemplated movement on the 14th.

Early on the 14th the advance was resumed, the king still at the head of his army. By midday, the leading elements reached the exit of the pass without encountering opposition. Instead, Thutmose learned that the Asiatic army was drawn up for battle between Taanch and the southern bend of the brook Kina, which flowed down from the hills at his left and out across the plain to his front. Plainly the estimate of the Pharaoh had been correct. The allies had expected the Egyptians to march by the Jenin-Taanach route and had neglected, like the Turks in September 1918, to block the road through Musmus pass. On both occasions the neglect proved costly.

An energetic and well led foe might still have made trouble for the Egyptians. The rear guard, the accounts tell us, was just leaving Aruna, nine miles in rear, when the advance guard arrived at the mouth of the pass. The most distant wing of the Asiatics was at Taanach, only three or four miles away. Assuming that the numerical strength of the two armies was about equal, the Allies would have an immense advantage in actual combat strength should they attack before the rear elements of the Egyptian army had cleared the pass. But the Asiatics again failed to seize their opportunity while Thutmose and his officers, realizing the disadvantage of their situation, took appropriate measures. In order to understand their plan of action, we must glance briefly at the topography of the immediate vicinity of Megiddo.

The ancient city stood at the opening of an indentation, like a bay, in the northeastern face of Carmel Ridge. This bay is about a mile deep and a mile and a half wide. The center is occupied by a group of mounds on the highest of which the city was built. Between its walls and the low foothills was a narrow strip of cultivated land; to the north and east stretched the Plain of Esdraelon, sloping gently towards the river Kishon. The mounds have an average height of seventy-five to one hundred feet, while the foothills rise from 200 to 300 feet above the cultivated land at their base. Between Hills C and D (see Map No. 2) is the wady es-Sitt from which flows the brook Kina. This brook has cut a channel across the plain which ranges from two or three feet deep at the mouth of the wady (a) to from fifteen to eighteen feet deep at the point marked (b) and beyond. Its banks are sharp and steep. At K there is a break in the line



of foothills while Knoll F extends the central group of mounds to the south along the main highway through Taanach and Jenin to Samaria and Jerusalem. The Aruna road debouches into the plain between Hills D and E, through a valley in which several thousand troops could be massed.

When the Pharaoh and the advance elements of the army reached the mouth of the pass and learned that the Asiatic forces were drawn up in battle array on the Taanach road, the officers, who apparently had never ceased to dread the dangers of the defile, requested that a halt be called until the rear of the army could close up in the wide valley behind them. According to the annalist they said to Thutmose, "let our victorious Lord

hearken to us this time, and let our Lord guard for us the rear of his troops and his people." The Pharaoh did as they requested. He halted the advance guard outside the mouth of the pass, and with the flanks secured by the ridges on either hand, the army continued to debouch into the valley until the whole force had completed the crossing. About sunset the entire army moved forward out of the valley to bivouac for the night on the level cultivated ground along the south bank of the brook Kina. Rations were distributed, sentries were posted and reports were made to the Pharaoh on the condition of the troops. Sometime during the evening, orders were issued to the army for the battle of the following day.

In the data which are given us concerning the passage of the Egyptian army over Carmel Ridge, there is an indication of its approximate strength. We are told that the rear guard was at Aruna when the vanguard issued in the valley of the Kina; and also that the rear guard "was going out upon this road when the shadow turned," i.e., at noon, and that the army arrived in camp on the Kina "seven hours after the turning." Thus the army occupied nine or ten miles of road space and it required between six and seven hours for any single element to complete the passage of the defile. While our knowledge of the Egyptian organization is too limited to permit a positive assertion, the proportion of foot troops and animal elements was probably comparable to that of a modern infantry force accompanied by its field and combat trains, but excluding service trains and auxiliaries. Moreover we know that Egyptian infantry, like modern infantry, marched in a column of fours when the road permitted. An infantry brigade of the United States army, consisting of 6,310 men and 1,021 animals, occupies a road space of 8,385 yards or about 4.8 miles. Hence, the Egyptian army, occupying a road space of nine miles, should have numbered in the neighborhood of 12,000 men, or if we allow for elongation of the column on the narrowest portions of the way, we may take 10,000 as a more accurate estimate. The period of seven hours for the crossing of any element is not excessive when the steep and narrow way is considered.

Of the action of the enemy in the meantime the annals give us only a glimpse. Having surprised and outmaneuvered them by his use of the Aruna road, Thutmose had gained a distinct moral and tactical advantage. The Asiatics not only failed to block the pass but they seem to have made no effort to attack

the Egyptians while the latter were strung out along the road. They apparently withdrew from Taanach and went into camp on the high ground north of the brook Kina where we find them in the following day's battle. Here they would interpose between the Egyptians and the city and cover their own retreat within the walls if necessary. Megiddo was, at this time, a strongly fortified city. Its massive brick walls enclosed an oval area roughly three hundred and twenty-five yards long by thirty-five yards wide. The walls were some thirty feet high and eighteen to twenty feet thick at the base. They were supported by buttresses at intervals. On the south and west, where the approaches were best, projecting glacis strengthened the defense. An underground channel supplied the city with water from the springs in the Wady es-Sitt.

The tactics of the battle of Megiddo can be traced only indistinctly. In the annals the scribe imparts but meager information and though Nelson's thorough study of the terrain enables him to give a very plausible description of the fight, it leaves many points undecided. Early on 15 May the king appeared and gave the orders which set the army in motion against the Asiatics. With their right flank resting on "the hill south of Kina," and their left extended to the "northwest of Megiddo," the troops were to cross the brook and attack. The Pharaoh, "in a chariot of electrum," "clad in his acoutrements of war, like Horus, the valiant," placed himself in the center. We may be sure then that the decisive attack was made by the center of the army from the cultivated ground just north of the brook. The deep valley of the Kina, with banks almost perpendicular, interposed between the right flank and the Asiatics. Here the operations of chariotry would have been impracticable; and although the infantry, if unopposed, could readily have crossed the stream, a crossing against enemy opposition would have been difficult. We may assume, then, that the mission of the right flank was defensive and protective. On the north flank also the operations of the Egyptian chariotry would have been handicapped by the steep slopes of Mound G on its northwestern side. The chariotry was therefore probably massed in the center where it could attack up the gentle western slopes of Mounds G and H, its flanks protected by the infantry. Probably the Asiatics drew up their forces in a corresponding formation around the slopes of Mounds G, H, and I, holding the high

ground with the deep brook valley protecting their left while their right rested on the walls of the city itself.

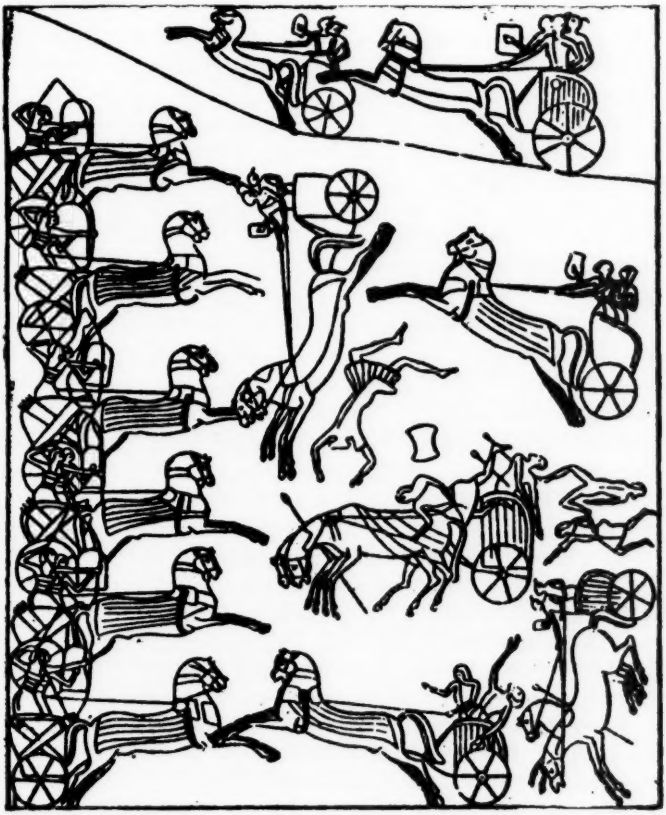
Despite their advantage of position the resistance made by the Allies seems to have been slight. Perhaps the Egyptians had the advantage of numbers. Perhaps the allied force, drawn from numerous petty states, lacked cohesion. It certainly seems to have lacked efficient and unified leadership. But probably the decisive factor in their defeat was the superior morale of the Egyptians, growing out of their long standing prestige so carefully fostered by Thutmose in his audacious crossing of the ridge. The morale of the Asiatics would be correspondingly lowered by the surprise maneuver. In any event, the Egyptian attack was quickly successful. "Then His Majesty prevailed against them at the head of his troops," declares the scribe, "and when they saw that His Majesty prevailed against them, they fled headlong to Megiddo with faces of fear." He tells us that the enemy abandoned their horses and their chariots; also that the gates of the city were closed against the panic stricken army, but that the people let down their garments from the top of the walls and drew many of the fugitives up onto the city.

Had the pursuit been pressed there appears to be no reason why Megiddo should not have been captured immediately. But the Egyptians failed to reap the full fruits of their victory because of an occurrence which has been characteristic of oriental armies throughout history, and is not unknown in European and American history. The Pharaoh's soldiers stopped to plunder the camp of the Allies. In his annals Thutmose laments: "Now had the troops of His Majesty only not given their hearts to plunder the possessions of the enemy they would have captured Megiddo at this moment." As it was, the bulk of the allied army escaped, some into Megiddo and some across the plain to the northeast.

No reference is made in the surviving accounts to the Egyptian losses. Probably they were small. The allied slain was less than a hundred, only eighty-three hands being listed among the Egyptian spoils. Cutting a hand from a slain foeman was a custom and counting the hands after a battle is a scene often represented on their monuments. The prisoners numbered 340. Among the plunder were 924 chariots, including those of the King of Kadesh and the King of Kegiddo, both of whom escaped, however. There were also 2,238 horses, 200 suits of armor, 502 bows and the tent of the King of Kadesh with its richly orna-

mented furniture. In addition there were large quantities of gold and silver and thousands of cattle and sheep. The latter items were probably obtained later when the city was finally captured. We are told also that the Egyptians reaped the harvests then ripening about the city and obtained more than 200,000 bushels of grain.

Having failed to capture Megiddo at once, due to the action of his troops in stopping the pursuit to plunder the Asiatic camp, Thutmose gave orders for the investment of the city. It was enclosed with an earthwork and a stockade of logs. No one was allowed to leave but for the purpose of surrendering. The king personally directed operations from a tower erected east



CHARIOTS MEET IN BATTLE

of the city which gave him a view over the entire field at once. How long the siege continued is uncertain, but the city finally capitulated with all its inhabitants and many of the petty princes of Syria who had participated in the revolt and found themselves shut up within the walls. The way was now open for Thutmose to march on Kadesh if he wished. The chastisement of that city and the extension of the empire into northern Syria were left for later campaigns, however. For the present, the king apparently contented himself with an advance into southern Lebanon, the capture of three additional cities there, and the erection of a fortress to guard his conquests. The campaign thus established his firm control throughout Palestine. After reorganizing its government, he returned in triumph to his capital at Thebes which he reached in October, six months after setting out on the expedition. Now for the first time Egypt was really a world power. Wealth poured in. Princes, whose loyalty had wavered in the time of Hatshepsut, hastened to set themselves right before the Pharaoh. The news of his victory spread even beyond the Euphrates. The King of Assyria, a nation then just rising from obscurity, sent a present to Thutmose to insure his good will. All this had been accomplished by one well directed effort.

The Megiddo campaign was therefore a fitting introduction to the wars of the first great general of history. Thutmose conducted fifteen or more campaigns in Syria, through which he extended his power as far as the Euphrates river. Step by step he consolidated his gains in Palestine, then moved against the coast cities of Phoenecia. For their subjugation he realized the need of naval as well as land power and so set about the building of a fleet which soon made Egypt the world's first mistress of the seas. Thereafter his land and naval forces worked in close cooperation and with communications by sea secure, he finally moved against Kadesh, his most powerful enemy in Syria. He succeeded in destroying the last vestiges of the power of those Hyksos who had ruled in Egypt two hundred years before his time. When he died in 1447 B.C., he was more than seventy years old. During his reign of fifty-four years, he had raised Egypt to a position of greater influence in world affairs than she had ever held before. The Empire he built persisted for generations.

Such, in brief, according to the historians, were the achievements of Thutmose III. His brilliant Megiddo campaign then

was no haphazard victory, no flash in the pan of military genius. It was, we must believe, the result of carefully laid plans and superior leadership based upon an appreciation of those fundamental principles which have formed the foundation of military success in all ages. It is no exaggeration to call him the first great military commander of recorded history. Like great commanders who have followed him, Thutmose possessed a strong character and displayed tireless energy. We have seen the former evidenced when he disregarded the advice of his officers on the march to Megiddo. The latter is shown by his numerous successful campaigns. His vizier, who probably knew him best, said of him: "Lo, His Majesty was one who knew what happened; there was nothing of which he was ignorant; . . . there was no matter which he did not carry out." But though a strong and aggressive leader, Thutmose seems to have had a gentle nature and an amiable personality. On his various campaigns in Syria, we are told, he collected flowers along the wayside in order that he might enjoy their blooming in his gardens in Egypt. It is significant, too, that the annals do not mention that a single one of the defenders of Megiddo was slain except those who fell in battle. No wholesale tortures and barbarities, such as marked the victories of the Babylonians, the Assyrians and other Near Eastern nations, including the Israelites, occurred on this, or so far as is known, on any of his other campaigns. Many of the rebellious princes were restored to their thrones as Egyptian vassals. Nor was the city of Megiddo itself destroyed. The Egyptians have been described as the most humane people of the ancient world. Thutmose III, their greatest soldier, appears to have been one of the most humane of the Egyptians.

We cannot take leave of the first great soldier without quoting an estimate of his character and achievements by Professor Breasted. "It is quite evident, indeed," he writes, "that the reign of Thutmose III marks an epoch not only in Egypt but in the whole Near East as we know it in his age. Never before in history had a single brain wielded the resources of so great a nation and wrought them into such centralized, permanent, and at the same time mobile efficiency, that for years they could be brought to bear with incessant impact upon another continent as a skilled artisan manipulates a hundred-ton forge hammer; although the figure is inadequate unless we remember that Thutmose forged his own hammer. The genius

which arose from an obscure priestly office to accomplish this for the first time in history reminds us of Napoleon. He was the first to build an Empire in any real sense; he was the first world hero. He made not only a world wide impression upon his age, but an impression of a new order. His commanding figure, towering over the trivial plots and schemes of the petty Syrian dynasts, must have clarified the atmosphere of oriental politics as a strong wind drives away miasmic vapors. The inevitable chastisement of his strong arm was held in awed remembrance by the men of Naharin for three generations. His name was one to conjure with, and centuries after his empire crumbled to pieces, it was placed on amulets as a word of power. And today, two of this King's greatest monuments, his Heliopolitan obelisks, now rise on opposite shores of the western ocean, memorials of the world's first empire builder."

Comments and Conclusions

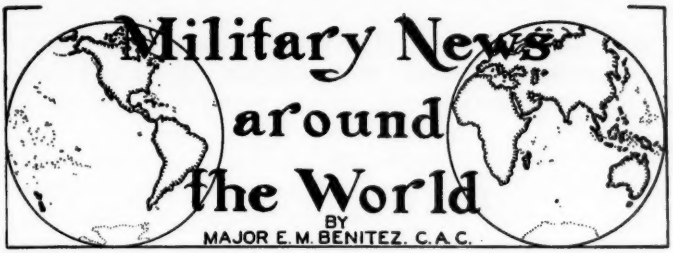
"He who hopes for success should fight on principle, not chance."—Vegetius.

Thirty centuries and more have passed since the campaign we have described; thirty centuries of change and human achievement. But we are impressed with the similarity which they bear, in fundamentals, to modern wars. Insofar as we are able to pierce the veil which time has spread across the 3,000 years, we can trace the same play of cause and effect as the careful analysis of history shows to have existed in even the most recent campaigns: success follows the observance of certain principles properly applied, and failure results from their neglect. An authoritative modern treatise lists three essentials for success in war. The first is the development of high moral qualities. The second comprises organization, discipline and training. The third consists of skillful and resolute leadership. That these essentials were recognized full fifteen centuries before the beginning of the Christian era must be evident from the study which has been made.

The campaign of Megiddo gives us our first insight into the minds and methods of trained soldiers. It thus forms the starting point for the study of military history and the information we possess of it helps to explain the course which the art of war has followed through the subsequent centuries. It is not necessary to contend that Alexander, Hannibal or Caesar actually studied the wars of ancient Egypt, to say that they were,

nevertheless, influenced by them. A contingent from Troy possibly came into contact with the Egyptian army at Kadesh. But of far more importance than any direct link is the indirect manner by which Egyptian culture, including her system of war, passed by way of Asia Minor and the islands of the Mediterranean Sea to Greece and thence to modern Europe. The military system in which Alexander was schooled and to which his own genius made great additions, had its roots far back in ancient Egypt. Hannibal, Caesar, Frederick, Napoleon and many others, have since contributed to the sum of military knowledge. But it is only by going back to the time of Thutmose III that the modern student is able to gain a complete view of the development of the art of war.

Science and invention, bringing to the soldier new weapons and machines, have greatly changed the methods of campaign and battle. But from the viewpoint we have gained at the dawn of recorded military history, the observation of Marshal Foch that "war remains subject to the same laws as formerly; . . . forms may change but the guiding principles subsist," receives new confirmation.



GENERAL

In our December 1937 issue, we gave the military and naval strength of the leading World Powers outside the United States. Two notable changes have taken place since that date.

The peace-time strength of the Japanese Army was given as 282,000 men. It is estimated that Japan has now approximately 1,300,000 men under arms of which about 1,000,000 are in China and the remainder are undergoing intensive training at home. Last March, the Japanese Diet (Parliament), despite opposition arguments that a Fascist dictatorship would be the result, passed the National Mobilization Bill. It authorized the government, by imperial decree, to draft Japanese manpower, to control or expropriate business, industry and raw materials, "for the purpose of attaining the object in national defense in time of war, including incidents of war." The provisions of this Act, the most important details of which are given elsewhere, were to be put into effect only in case of a major conflict; however, although the Chinese war is still referred to as an "incident," several sections of the Mobilization Law were invoked the first week in May, making Premier Konoye a virtual dictator of Japan's productive sources and manpower.

On 15 March 1938, Germany annexed Austria by a bloodless coup. The plebiscite of April 10th, held on the question of Austria's inclusion in the "Greater German Reich," gave Hitler the anticipated overwhelming majority of 99.02 per cent in Germany and 99.72 per cent in Austria. So passed into the limbo of forgotten pledges another section of the Treaty of Versailles. Under Article 80 of that tattered document, "Germany acknowledges and will respect strictly the independence of Austria . . . she agrees that this independence shall be inalienable, except with the consent of the Council of the League of Nations."

The territorial limits of Germany have been thus expanded by an area approximately equal to that of the state of Maine, and its population has been increased from 66 millions to about 74 millions.

Austria had a regular army of 70,000 men and 190,000 trained reserves. Germany is losing no time in strengthening her military power in the newly-won province and the transformation of Austrian armed units into Pan-German armed forces is proceeding rapidly.

A new flotilla of armed speedboats has been ordered on the Danube River and Austrian gunboats have been placed under command of a German naval captain. The Austrian Danube fleet has been incorporated into the German Navy.

The annexation of Austria means the strengthening of a great military power, and makes the German Reich one of the most potent driving forces in Europe today.

Great Britain continues her lavish expenditures on the air force, its munition factories are working day and night, service in the army has been made more attractive to increase recruiting by increasing the pay and improving living conditions. In general, the government aims at the creation of a highly mobile force of great fire-power.

France has adopted an ambitious program for expansion and modernization of its air force. A two-year plan has been adopted under which 1400 planes are to be built immediately. They are expected to be ready by next spring. Delay in French aircraft production has been attributed in part to strikes in the metal industries and to neglect in mass production of machines. The Superior Council will, in the future, be composed entirely of service personnel and orders for planes will be placed abroad to supplement the output of French aviation factories. In Europe, the French Army is still considered as second to none.

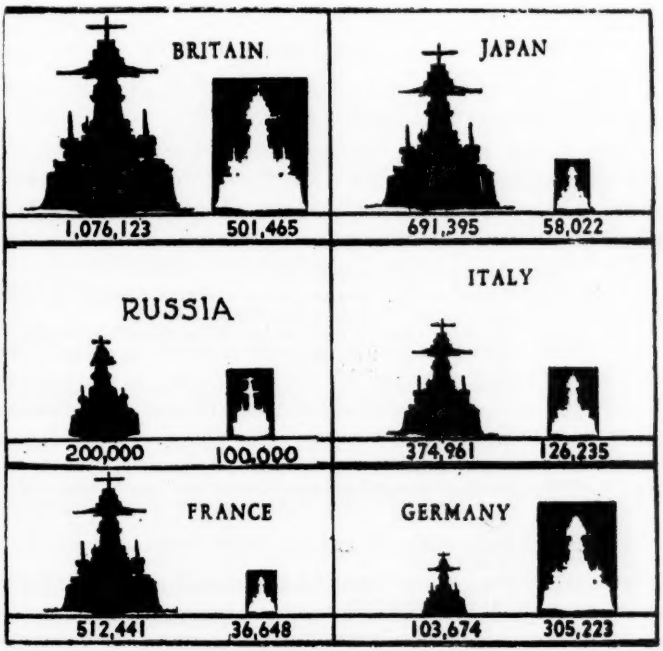
Italy has an alert war machine, the fighting edge of which has been sharpened by experiences in actual warfare in Abyssinia and Spain.

Soviet Russia still has the largest army in the World and, according to reports, is secretly and feverishly developing a great civil and military aviation machine. Observers believe, however, that the influence of the Soviet Union as a military world power has been declining steadily ever since firing squads began removing the most important men from the Red High Command. Thirteen top-flight military or naval officers, includ-

ing two Vice-Commissars of Defense, have lost their posts during the last few months. They were all men who had survived the first big Red Army purge last June, when Marshal Tukhachevsky, Vice-Commissar of Defense and seven other leaders were executed for treason. Four of the thirteen were members of the army court-martial which sentenced Tukhachevsky to death. These executions appear to indicate an army torn by intrigues and plots and have resulted in a loss of military prestige.

Foreign military observers believe that today Europe is engaged in a record peace-time armament race, with millions of trained men, armed to a greater degree and with much more efficient weapons than during the World War.

The naval situation, indicating tonnage under construction or authorized, as reported in "Jane's Fighting Ships," is shown in Figure 1, as published in *The Kansas City Star*.



NAVIES OF THE WORLD

ARGENTINA

Dr. Roberto M. Ortiz, who won the election last September as representative of the Government Party by 245 electoral votes, as against 127 for the Radical candidate, was inaugurated President of the Republic on 20 February amid brilliant ceremonies. The new president had served as Minister of Finance in the Justo Cabinet. He will remain in office for six years.

Six "flying fortresses" participated in the inaugural ceremonies. On brief notice, these ships left Langley Field, Virginia, stopped at Miami, flew 2,695 miles to Lima, Peru in 15 hours and 34 minutes; stopped for five hours and dashed down the western coast of South America to Valparaiso, Chile, whence they crossed the Andes at over 20,000 feet and then covered the breadth of South America to land in Buenos Aires in 13 hours for a total elapsed time of 34 hours and 15 minutes from Miami. Records reveal that this flight was one of the most spectacular flights in the history of aviation.

AUSTRIA

The Austrian Army consisted of 70,000 men in the regular army and 190,000 reserves.

On March 12, 1938, German troops invaded Austria and this once mighty state became a province of the German Reich. A brief history of Austria for 2,000 years is given below as compiled by the *Associated Press:*

33 — Annexed to Roman Empire
791–796 — Seized by Charlemagne, who established Margraves (titles of nobility) of Eastern Bavaria and Austria.
1156 — Emperor Frederic I made Austria an hereditary duchy.
1278 — Rudolph of Hapsburg acquired Austria as a part of the Holy Roman Empire.
1566 — Abdication of Charles V turned empire into loose federation.
1804 — Francis II renounced Holy Roman title and became Emperor of Austria.
1860 — Emperor Franz Joseph imparted legislative power to provincial states and the council of empire.
1867 — Hungary granted self-government; parliament consisted of representation evenly divided between Austria and Hungary.
1914 — Assassination of Archduke Franz Ferdinand touched off World War.
1916 — Franz Joseph's death ended Hapsburg's golden age; Charles VII succeeded him.
1918 — The Hapsburgs fell. Charles renounced throne. Austria proclaimed republic. Poland, Yugoslavia and Czechoslovakia created.
1938 — Adolf Hitler merged Austria and Germany.

BELGIUM

The Belgian government is reported to be feverishly working to protect the civilian population against air attacks. Concrete air shelters, some of them 4 feet thick, already have been constructed in many Belgian cities. Some of them are shaped liked beehives and can accommodate 20 persons. A few can hold as many as 700. Other shelters have been built in underground cellars. Air raid alarms are sounded on Sundays in order to accustom the people to these alarms.

BOLIVIA

After nearly three years of work the Chaco Peace Conference is preparing to make what may be its last attempt to reach an agreement between Bolivia and Paraguay. The new effort is intended to reestablish diplomatic relations and fix the boundary between Bolivia and Paraguay.

Paraguay, claiming victory, wants the boundary running north from D'Orbigny on the Pilcomayo River and west from a point north of Puerto Cabello on the Paraguay River. In other words, it wants to retain the territory it occupied at the close of the war.

Bolivia wants the line established from Fort Ballivian on the Pilcomayo to the southeast of D'Orbigny, northward to 27 de Noviembre in the northeastern part of the Chaco and thence eastward to Bahia Negra on the Paraguay River south of Puerto Cabello.

Thus a narrow strip around the entire Chaco is in dispute. Paraguay says that to give up this strip would mean surrendering the better part of the petroleum fields. The Bolivian government desires Bahia Negra for a water outlet on the Paraguay. Conference members contend that Puerto Cabello would provide the same outlet, although the draft at either place is only about six feet, navigable by small river craft only. No suitable transport roads connect Bolivia proper with either place.

If the Conference fails, the question may be passed to the Permanent Court of International Justice at the Hague, as provided in the original protocol by which the war was ended and the peace conference created.

(*United Press*, 15 May 1938)

THE CHACO BOREAL

BRAZIL

Passports:

On January 1, 1938, an agreement between Brazil and the United States went into effect whereby they reciprocally waive passport visa fees for non-immigrants, who include nationals of one country proceeding to the other in an official capacity, as tourists, on temporary business, or in transit to a third country, and seamen in the country while their respective ships remain in port. The United States has a similar agreement with forty-seven other countries, among them being Chile, Colombia, Costa

Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru and Venezuela.

(*Pan American Union Bulletin*, April 1938)

A Fascist revolt which broke out at Rio de Janeiro on May 10th, was quickly suppressed by President Getulio Vargas.

CHILE

Since March 13, 1904, the Christ of the Andes has stood in a majestic setting of snow-covered peaks on the boundary between Argentina and Chile, commemorating a series of peace and boundary pacts signed by the two countries in 1902 and 1903. In fulfillment of a resolution of the First Regional Ibero-American Conference of Rotary International, a group of South American Rotarians unveiled, on January 17, 1937, a bronze tablet containing the famous words of Bishop Jara: "Sooner shall these mountains crumble into dust than Argentineans and Chileans break the peace sworn at the feet of Christ the Redeemer."

CHINA

The German Mission headed by General v.Falkenhausen has been, according to military experts, largely responsible for the success of Chinese armies at Taierchwang.

COLOMBIA

On May 1, Dr. Eduardo Santos, candidate of the Liberal Party, was elected President of Colombia for a four-year term, and will be inaugurated President of the Republic 7 August, 1938. His chief plank is stimulation of Colombian industries through restrictions of foreign promotion.

CUBA

Colonel Fulgencio Batista, Cuba's Army Strongman, announced that further legislation on the Three-Year Plan will be suspended until after the presidential elections next year. Under

this plan, he has thus far distributed to indigent farmers over 300,000 acres of state lands and lands formerly leased to private individuals and companies, constructed some 700 schools, where army non-coms act as teachers, restricted the employment of foreigners and imposed price and minimum wage restrictions on the sugar industry. This plan has been criticized by many Cubans as an attempt to regiment all phases of their national life.

(*Time*, 16 May 1938)

CZECHOSLOVAKIA

The republic of Czechoslovakia was born in 1918 in the reshaping of the map that followed the World War. Its capital is Prague, with a population of 850,000. According to the 1930 census, its population is 15,000,000, of which 3½ millions are Sudenten Germans. In natural resources, and industrial development, it is one of the richest areas in Europe. Included in its borders are the Czech districts of Bohemia, Moravia and Silesia, as well as Slovakia and Ruthenia, which were in sub-Carpathian Russia.

The republic has more than 150,000 trained men under arms. Compulsory military training, with all masculine citizens

SHADED AREA INDICATES POPULATION OF GERMAN EXTRACTION

between the ages of 17 and 60 liable to army service, provides a great reserve from which to draw manpower. The army is trained under French officers and is well equipped. Outstanding among the nation's well developed industries is the great Skoda munitions plant in Pilsen, controlled by the government, which in the last year extended over 50 million dollars credit to embattled China.

DOMINICAN REPUBLIC

Dominican elections held May 17th resulted in the selection of Dr. Jacinto B. Peynado as President of the Republic. He was indorsed by President Trujillo, who announced on January 8th that he would not be a candidate for reelection. Dr. Manuel J. Troncoso was named Vice-President. The elected candidates had no opposition at the polls. They will assume office next August 16th.

ECUADOR

The Exposition of Ecuadorean Progress was held in Quito in May. Quito is reached by a railroad engineered to surmount the Andes at an altitude of nearly 12,000 feet, after which it descends gradually through a beautiful valley to the capital, whose altitude of 9,500 feet above sea level gives it a climate of perpetual spring.

Guayaquil is not only an active seaport, but also a stopping place of the Pan American Airways, only two days from Miami.

(*Pan American Union Bulletin*, March 1938)

FINLAND

On May 16, Finland celebrated its twentieth anniversary in commemoration of the end of Finland's war for independence against Russia.

FRANCE

National Defense:

By recent decree (May 3) the Naval Ministry was authorized to begin construction before December 31, 1939 of two

battleships, one cruiser, seven submarines, five oil tankers, and a number of auxiliary aircraft.

War manpower will be increased by incorporating an unstated number of reserve officers into the regular army, increasing the navy from 69,500 to 72,500 men and the air force from 44,000 to 52,500 N.C.O.s and men. Two new battalions of Senegalese sharpshooters, among the best colonial troops, will be created.

Another decree provides increases in the effectives of the army, navy and air force, and also makes provision for strengthening the defenses of the colonies, notably Indo-China, Somaliland and Equatorial Africa.

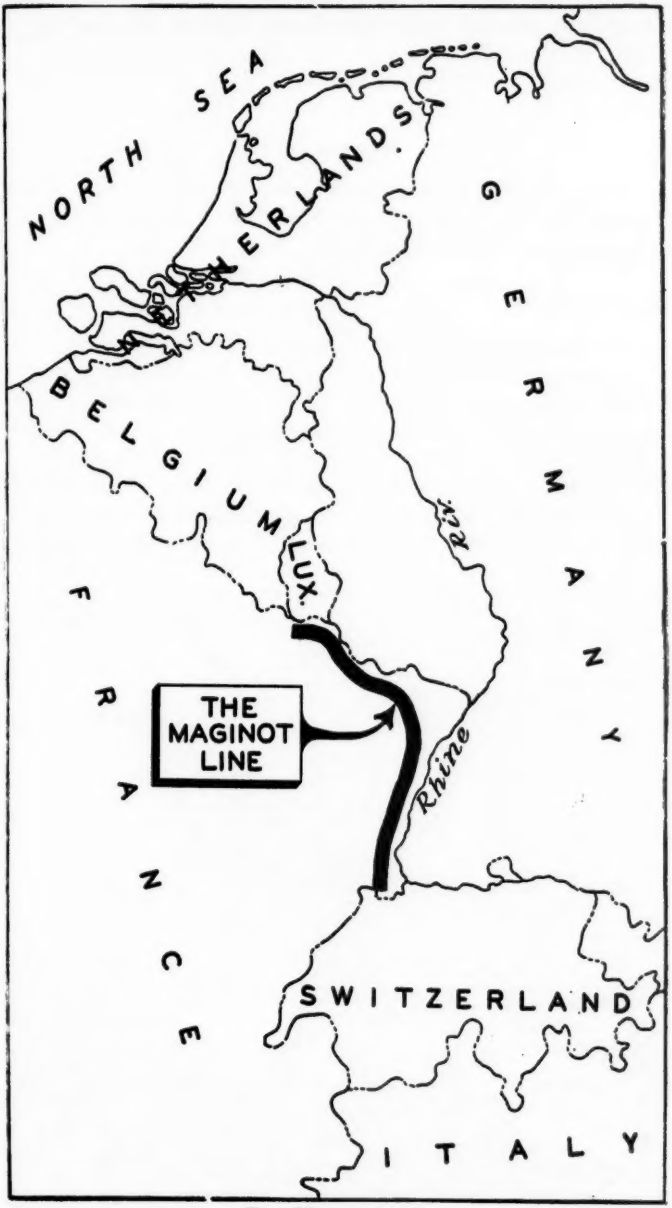
More than 120,000 white troops will be withdrawn from the colonies and garrisoned within the borders of France within the next two months as part of the new empire and defense policy of Premier Edouard Daladier's government. The troops will be brought home from French Occidental and Equatorial Africa, Madagascar and Indo-China. The decision is based upon the theory of Georges Mandel, Minister of Colonies, that there is one all-important place to defend the nation and empire — the Rhine.

The Governor of French Indo-China has been instructed to raise a supplementary force of 20,000 men, and the governors of the French possessions in the Cameroons, Central Africa, to recruit 50,000 negro sharpshooters. They will be available to defend the French colonial possessions in case regular troops are called to the home country in case of war.

The Maginot Line:

The Maginot Line, named after its founder, is perhaps one of the greatest defense systems the world has ever known. Its length is about 200 miles, running from the Belgian frontier to a point along the Swiss border. The line is a series of underground forts, immensely strong and separated from each other by a few miles. These forts are built of concrete, heavily reinforced, and are supposed to be bomb-proof, shell-proof and gas-proof. Of France's army of about 750,000 men, some 100,000 are garrisoned in the Maginot Line with about 300,000 troops in continental France.

The Maginot Line does not, at present, extend up the Franco-Belgian frontier. Belgium, therefore, retains all the



THE MAGINOT LINE

importance she had before the World War in the strategical scheme of Europe.

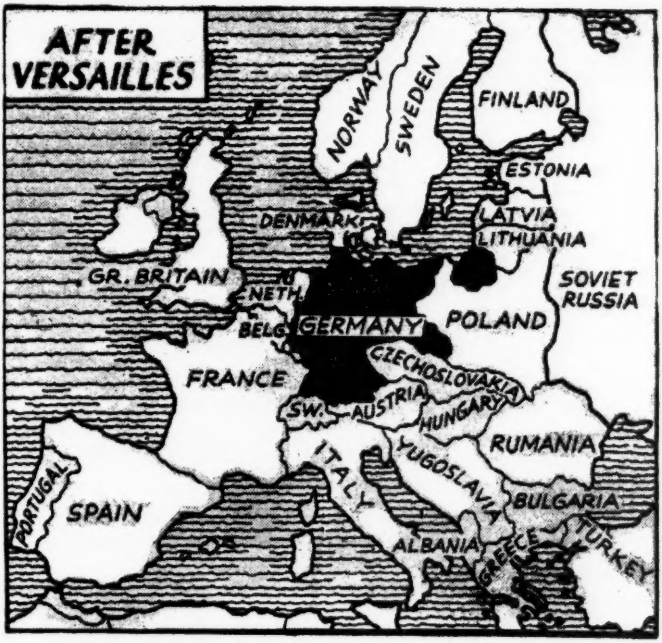
GERMANY

In a recent speech in the Reichstag, Hitler reiterated his demands for restoration of the colonies lost by Germany to the Allies as a result of the World War.

Army Command:

General Wilhelm Keitel, Chief of Staff of the Armed Forces and successor in power to Field Marshal von Blomberg, is 55. He was a lieutenant of artillery in 1914, but served mainly on the General Staff. He was appointed a major in the Reichswehr, and from 1929 to 1934 was head of the Army Organization Department, the principal one, of the Ministry of Defense.

General von Brauchistsch, age 56, now head of the army in succession to Frilsch, is an artillery officer and was a captain


AFTER VERSAILLES
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CZECHOSLOVAKIA
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RUMANIA
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YUGOSLAVIA
PORTUGAL
SPAIN
BULGARIA
ALBANIA
GREECE
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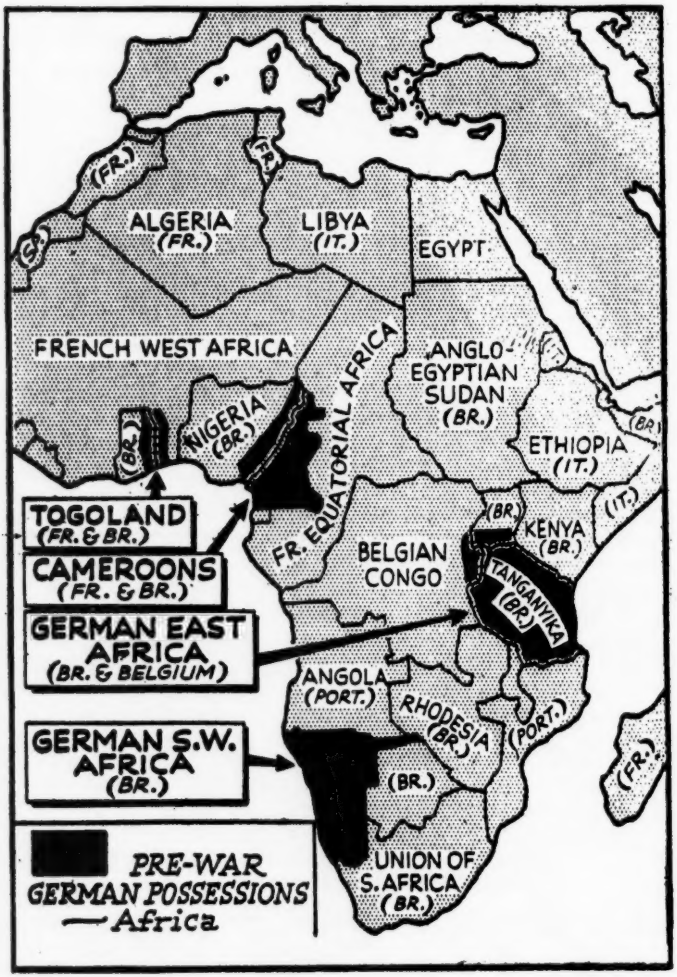
GREECE
TURKEY

Germany's African Colonies Lost After World War



of the General Staff in 1914 and remained on the Staff. He was appointed a lieutenant colonel of the Reichswehr. After holding artillery commands and serving in the Ministry of Defense, he was made Inspector of Artillery in 1932, and, a year later, a corps commander.

Not one of the new men had experience in command, even of a battalion, during the World War, and some of the older officers do not seem to be altogether satisfied. They recall that Blucher and Moltke were 70 years old in the years of their greatest triumphs; that in August 1914, von Hindenburg was 68 and that Mudra and von Gallwitz, two of the greatest leaders of the Great War, were 62 and 63, respectively.

(*Foreign Press*)

GREAT BRITAIN

Air Force:

The British Air Force, besides the reserve units, consists at present of 2,031 planes, 1,542 of which are in home territory; of this number 840 are bombardment and 152 are reconnaissance.

Units are gradually being equipped with Wellesley and the Whitely planes, with speeds of 210 miles per hour. Similarly, the bombardment units are being gradually equipped with the Blenheim, which has a reported speed of 280 miles per hour with full load and a radius of action of 1,000 miles.

The infantry will be provided with an antitank weapon. In addition to its thirty-six antitank guns, the division will be equipped with 104 heavy rifles, thus providing one antitank gun per platoon.

(*Bulletin Belge des Sciences Militaires*, March 1938)

Navy:

The speed with which the strength of the Royal Navy is increasing is shown by the following figures of tonnage building at successive dates:

1 January, 1935	139,345
1 January, 1936	281,925
1 January, 1937	375,740
1 January, 1938	547,014

During the year April 1938-March 1939, some sixty new vessels of all classes are expected to be put into service, representing a total of over 130,000 tons.

The program of new ships to be laid down in 1938 will consist of the following: 2 capital ships; 1 aircraft carrier; 4 large cruisers; 3 small cruisers; 3 submarines; 2 river gunboats;

1 destroyer depot ship; 1 fleet air arm supply and repair ship. The program will also include boom defense vessels, tugs, motor torpedo boats and miscellaneous small craft.

Modernization of existing ships is continuing expeditiously. The work on one capital ship has been completed, and three others are undergoing repairs.

As regards the army, the accumulation of the necessary war reserves is proceeding on a large scale. One tank battalion has been formed and another will be raised shortly. The Mobile Division is now in being as a formation and will train as such this year. Arrangements have been made with the government of India which will make possible the mechanization of cavalry regiments.

Certain overseas garrisons have been strengthened, and further increases are in contemplation. Steady progress has been made in improving the defense of overseas bases.

The Metropolitan Air Force for home defense, was raised during the past year to 123 squadrons; the corresponding force in 1934 was 52 squadrons. The present force consists of 68 bomber squadrons, 30 attack squadrons, 15 squadrons of observation aircraft and torpedo bombers and 10 army cooperation squadrons.

(*Royal Air Force Quarterly*, April 1938)

Gas masks:

Geoffrey Lloyd, under secretary of state for home affairs, announced recently that more than 26,000,000 gas masks were stored in Great Britain ready for use and that 650,000 more were being produced each week. The total population of Great Britain is approximately 45,500,000.

Army:

Great Britain's territorial army of 160,884 men will be completely reorganized and partially mechanized to improve its mobility and fire-power, it was announced by General Sir Walter Kirke, director general of the territorial army, which is a volunteer reserve force similar to the United States National Guard. Conversion of some infantry battalions to antiaircraft units will be expedited.

War Secretary Leslie Hore-Belisha announced that he would raise an army of women as part of the British war machine he is rebuilding. He called a conference of women's leaders at

the War Office to discuss how women could be drilled to assist in time of war. There was no indication, however, that he planned to put women in the trenches. He said that his aim was to train them in various tasks, so that on mobilization women could supply military requirements for various non-combatant duties.

The announcement recalled the situation during the World War, when 1,000,000 women made munitions, more than 100,000 served as nurses, and many thousands more served with the Women's Auxiliary Army Corps (WAACS) and the Women's Royal Naval Services in non-combat work.

Anglo-Irish Treaty:

The new Anglo-Irish agreement was approved on second reading, without a record vote by the House of Commons, following a debate in which Winston Churchill, former Chancellor of the Exchequer, attacked the provisions in the agreement

whereby Great Britain handed back three Irish ports. After a third reading, expected to be a mere formality, the measure is to go to the House of Lords for approval and then to King George VI for signature. It was ratified April 29 by the Dail Eireann (lower house) at Dublin.

Under the new treaty, the British give up naval control of Lough Swilly in the north; Bere-Haven in the southwest, and Cobb in the southeast. These harbors have been transferred to Irish control and in the future, Ireland will attend to her defenses.

Canada:

An Anglo-Canadian rearmament program was recently inaugurated as the John Inglis Co., Ltd., in Toronto set to work on an $8,000,000 order for 12,000 machine guns. Seven thousand of the guns, light-weight Brens adapted from Czechoslovakia models, will be distributed to the Canadian militia; 5,000 will be shipped to Britain to aid the mother country in her frantic scramble to rearm.

The Bren was adopted for Britain's infantry battalions some two years ago, to replace the U.S. invented Lewis machine gun. The name is a British War Office simplification of Brno, site of the Czechoslovakian Army Manufacturing Co. plant where the gun was perfected. A trim, compact gun, it can be operated by one man and fired from the shoulder, on a bipod or tripod. It is ten pounds lighter and five inches shorter than the old army pattern Lewis gun, is gas-operated and air-cooled. There are two interchangeable barrels, so that if one overheats after a period of rapid firing, the other can be slipped in place in 20 seconds. With two men behind it, one feeding and the other firing, the Bren can fire about 600 rounds a minute.

(*Time*, 16 May 1938)

The bulk of the British trade in China makes use of three important routes: The trade of the Southern Chinese provinces follow the river route to Canton and thence to the port of Hong Kong; the trade of the provinces bordering the Yangtze and its tributaries converges on Hankow and goes by river to Shanghai; the trade of the northern provinces converges on the Peiping-Tientsin Railway. Of these three sources and outlets of British trade, two are now almost entirely under the control of Japan.

The distribution of the British infantry and tank units, taken from the Army List and Directory, 1937, is roughly as follows:

	Rifle Battalions	*Machine-Gun Battalions*	*Tanks*
British Isles	40	13	6 Bns.
Normal garrisons abroad	53	11	5 Cos.
Special garrisons abroad	11	....	1 Bn.
	104	24	7 Bns. 5 Cos.

Modern Infantry Battalion.—A demonstration designed to show the most modern British infantry equipment and its proposed tactical use by troops was staged by the 2nd Battalion, South Staffordshire Regiment, at Aldershot in January. The demonstration unit was composed of a Headquarters company, which contained most of the specialized equipment, and three rifle companies of four platoons each. The main features of the demonstration were:

(a) *Reduction in weight of clothing, arms and equipment.*—The soldier's load is 42 pounds instead of the normal load of 50½ pounds and the 1914-18 wartime load of between 70 and 80 pounds. The ideal load to be attained is 35 pounds. The new web equipment is 1½ times lighter than the old pattern equipment and the discomfort of articles hanging below the waist has been eliminated. The haversack with the water bottle inside is carried on the shoulders to replace the pack which is relegated to the platoon truck. The ammunition, instead of being carried in small pouches, is carried in two large flexible pouches which are also suitable as carriages of Bren automatic rifle ammunition, or grenades. The length of the bayonet is reduced from 18 to 8 inches.

(b) *Flexibility and fire-power of the rifle platoon.*—The platoon is formed in three sections of six men each and is very much a self-contained unit with formidable fire-power, having one automatic rifle, 2 Bren light machine guns with their ammunition, a bombing set and smoke grenades, and a truck to transport its heavy weapons, tools, stores and as much as possible of the men's equipment. The marching formation is in threes instead of fours.

(c) *Fire-power of mortar and antiaircraft platoons.* — The mortar platoon consists of four detachments each with one 3-inch mortar, smoke and high explosive bombs; all of which are carried in two trucks. The antiaircraft platoon consists of four detach-

ments each with one truck, one Bren light machine gun, one automatic rifle and a considerable supply of wire for road blocks. This platoon has a high fire-power, is very mobile, and the demonstration indicated that it can be used for reconnaissance and advance and rear-guard action as well as for providing protection from aircraft to the rest of the battalion.

(d) *Mobility of the battalion.*—The M.T. vehicles include a car for the battalion commander, ten Austin 7's, thirteen motorcycles and thirty-three trucks. In an emergency, 300 men can be moved in one trip in these vehicles and it is estimated that in three trips the whole battalion can be transported 10 to 12 miles within three hours. The demonstration included the crossing of rivers in small "Aeroboats" which can be pumped up with an ordinary tire pump.

(*Canadian Defence Quarterly*, April 1938)

The strength of the Territorial Army (equivalent to our National Guard) exclusive of its permanent staff, on the 1st of January, this year, was 9,046 officers and 149,797 other ranks. Its authorized strength is 201,000 men. These figures show an increase of 1,176 officers and of 16,514 other ranks than those at the same period in 1937. Two divisions of these troops are now permanently allotted to the antiaircraft defenses of Great Britain.

The Regular Army has a strength of 190,000 men and a reserve of 130,000.

(*Canadian Defence Quarterly*, April 1938)

Maneuvers:

British troops have recently conducted maneuvers in the Egyptian desert, the object being to test the organization for the transport and maintenance of large bodies of troops in the Western Desert, the staying power of men and machines, and their ability to maneuver on a wide area with the minimum vulnerability from air attack. The number of casualties among the personnel of the mechanized force was said to be negligible, and 95 per cent of the vehicles were fit to continue when the maneuvers were called off. According to the report, there was no difficulty in maintaining supplies of fuel and food without delay in the operations.

(*United Services Review*, 14 April 1938)

Mechanization:

Two brigades of mechanized cavalry, each composed of three light tank regiments, together with one tank brigade, is

the composition of the Mobile Division as recently laid down. The two mechanized infantry battalions have been withdrawn from the cavalry brigades and are now to form part of the divisional troops. In this connection it is interesting to note that infantry brigades have now been completely reorganized on a three-battalion basis, which is a handier formation than the old four-battalion brigade.

The divisional artillery has now been completely mechanized, and now it is under consideration whether the battery should be on an eight-gun instead of a six-gun basis.

(*United Services Review*, 27 January 1938)

The Mobile Division of armored and unarmored units is intended to take the place of the cavalry division of old. Some believe it will; others hope that it may; there are still others who doubt that it can. In any case, the final composition of this division is still unsettled, its lack of complete definition is proven by the recent addition of another regiment of mechanized cavalry to the cavalry brigade.

(*United Services Review*, 9 December 1937)

The British Cavalry in India is to be mechanized and a grant of 600,000 pounds is to be made to the government of India in order that it may carry out mechanization without delay.

(*United Services Review*, 9 December 1937)

GREECE

Construction on two 250 to 330-ton submarines has begun in the Krupp shipyard. The vessels will carry one heavy machine gun and two torpedo tubes. Negotiations have also begun for the building of two 750-ton submarines. Two destroyers are now being constructed in England.

(*Naval Institute Proceedings*, May 1938)

GUATEMALA

Guatemala contends that Great Britain owes that country a road 200 miles in length from the Atlantic Coast to the capitol, in accordance with a treaty concluded in 1859.

British Honduras, Britain's only colony in Central America, touches Guatemala on the east and lies south of Yucatan. By the boundary of the treaty of 1859, Guatemala recognized the sovereignty of British Honduras and the same treaty provided for the construction of a road by Britain in Guatemalan territory from the coast of the Caribbean to the capital of Guatemala City.

The cost of construction of this road has been found to be very high and the subject has been under discussion by the two countries for more than half a century.

HAITI

The dispute between Haiti and the Dominican Republic over frontier clashes in which a number of Haitian laborers were killed on Dominican soil, has been amicably settled.

HONDURAS

The boundary question between Honduras and Nicaragua had its origin in a Nicaraguan airmail stamp showing as disputed territory land claimed by Honduras in accordance with the arbitral award of King Alfonso XIII of Spain, in 1906, an award not accepted by Nicaragua. The government of Honduras was insistent that the stamp be withdrawn from circulation, and relations between the two countries were somewhat strained when the governments of Guatemala and Costa Rica offered to mediate. The government of Nicaragua declined the offer because it considered as still pending the mediation offered in 1918 by the government of the United States and accepted by both parties. A little later the governments of the United States, Costa Rica and Venezuela, offered their good offices to secure a peaceful solution of the controversy. Both countries accepted and the mediation commission met in San Jose, Costa Rica. As a result of its conferences, the delegates of Honduras and Nicaragua signed a pact to maintain peace until the matter should be definitely settled.

(*Pan American Union Bulletin*, April 1938)

HUNGARY

Bela Imredy, hailed as a "strong man," was appointed Premier on May 13 and was sworn in the following day by

Admiral Nicholas Horthy, the Regent. The new Premier is expected to take energetic measures to crush Hungary's rapidly growing Nazi movement.

ITALY

In the two years that have passed since the annexation of Ethiopia was proclaimed on May 9, 1936, Italy has not only virtually completed military occupation of the whole territory but also has created a network of roads opening up all corners of the empire to Italian penetration.

According to press reports, 60,000 Italians and about an equal number of natives are at present working on highways. The principal roads that will be open to traffic by June 30, when the rains begin are:

Asmara — Takazze — Gondar	345 miles
Asmara — Dessye — Addis Ababa	684 miles
Asmara — Tessenei — Subderar	244 miles
Assab — Dessye	317 miles
Addis Ababa — Junma	219 miles
Addis Ababa — Lekempti	124 miles
(two-thirds completed)	

(*New York Times*, 8 May 1938)

Naval Bases:

The little Italian island fortress of Pantelleria may be destined to rank in importance with Gibraltar, Malta, Suez, Sicily and the Balearics in the strategic battle between the Mediterranean Great Powers.

Scarcely forty-five miles from the coast of French North Africa and sixty miles from Sicily, Pantelleria is neatly posted midway in the narrowest straits of the Mediterranean athwart Britain's imperial line of communications with the Near and Far East, all-important for the Empire both in peace and war.

Thus forty-five miles of volcanic Mediterranean rock, held in turn through the centuries by Carthaginians, Romans, Arabs, Sicilians and Spaniards, hitherto useful only as a penal colony for political prisoners, constitutes Mussolini's most potent answer to Britain's great rearmament program and the threat of numerical naval supremacy over Italy in "mare nostrum."

The island's rugged terrain does not permit Italy to establish an air base there, but this is hardly necessary with Sicily

only a few minutes' flight away. Pantelleria could be defended by an air force based on Sicily and its value is essentially that of a base for submarines which could wreck havoc on enemy ships attempting to navigate the narrow straits on either side of the island, or for mine layers which could throw an inpenetrable chain of mines across the water with disastrous effect.

Maneuvers:

Italy's North African troops will conduct maneuvers in Western Lybia. Large bodies of troops will be given training under African conditions, and the lessons taught by the Ethiopian War will be taken as a guide.

JAPAN

National Mobilization Act:

Last March the Japanese Diet passed the National Mobilization Law, making Premier Prince Fummaro Konoye a virtual dictator of Japan's productive sources and man power. Traffic in the capital modern streets has declined, for private cars are limited to two gallons and taxicabs to seven gallons of gasoline a day. Some important details of this Industrial Mobilization Plan are as follows:

1. All manufacturing is subject to strict government regulation.

2. Industries are compelled to work cooperatively through national associations. Each association plans production schedules for the industry it represents and allots specific amounts to each manufacturer.

3. All prices are fixed by government.

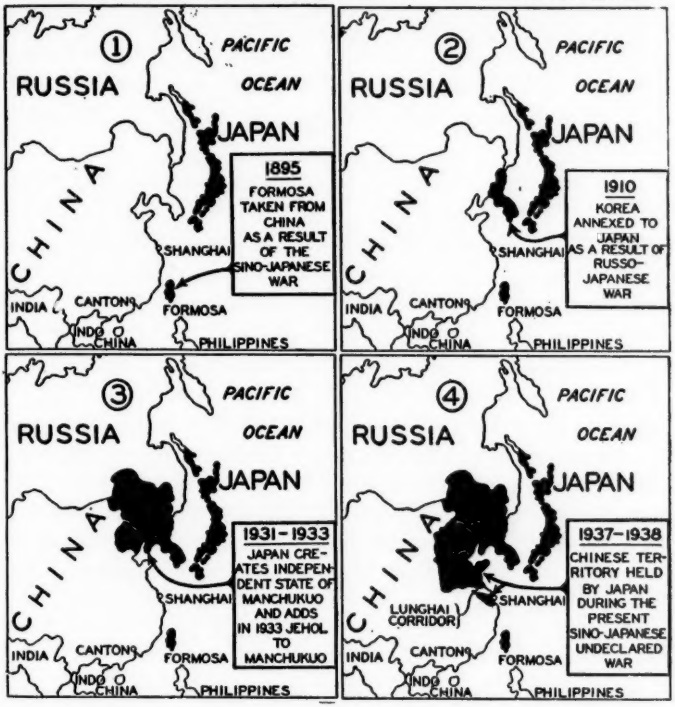
4. Foreign trade is controlled by the government through exporting and importing guilds. No exporter may sell to a foreign buyer and no importer may buy from abroad without government permission.

5. Mines and manufacturing plants can be expropriated and run by the government.

6. The right to strike is taken from labor.

7. Profits are limited by government decree, or taxed to avoid profiteering. Talk about regimentation!

HOW JAPAN HAS ESTABLISHED HERSELF ON THE ASIATIC MAINLAND



After thirty-six hours of furious debate the electric power bill transferring entire control of Japan's huge electric industry, from private hands to the state, was passed.

The session approved the regular 1938-1939 budget of $883,000,000, which about half goes to the army and navy and also a supplementary budget of about $1,400,000,000 for expenses of war in China.

A new ordnance announced by the finance ministry requires government permission for the following transactions:

Purchase or sale of foreign exchange, sale of exchange in foreign countries, remittances, including cash, to foreign countries, export of coupons of security in foreign currency, issuance of letters of credit and payment of telegraphic transfer.

Navy:

The Japanese Ministry of the Navy on April 30th made several important changes in the naval high command, including the recall of Vice-Admiral Kiyoshi Hasegawa, commander of Japan's third fleet in Chinese waters throughout the Shanghai operations.

Hasegawa was assigned as commandant of the Kokosuka navy yard. His successor, Vice-Admiral Koshiro Oikawa, already has arrived in Shanghai to take over the naval command.

Vice-Admiral Isoroku Yamamoto replaced Oikawa as Chief of the General Staff of the naval air force. Yamamoto will continue as Vice-Minister of the Admiralty.

Rear Admiral Hoshinobu Shishido succeeded Rear Admiral Denshichi Okochi as commander of the naval land force at Shanghai. Okochi became director of the naval artillery school.

Unconfirmed reports said major changes also were impending in the army command as a result of the recent inspection tour in China by General Sugiyama, Japanese War Minister. It was considered possible that the changes presaged a combined drive by the army and navy to break the present military deadlock.

Army:

According to Russian newspapers Japan contemplates the organization of a light infantry division, entirely motorized and equipped with modern armament. It will consist of division headquarters, two infantry regiments, a mechanized regiment, an artillery regiment and a service regiment.

The infantry regiment will consist of three battalions, each of three rifle companies and one machine-gun company, with a total of 2,080 men, 1,600 light automatic weapons, 48 machine guns, 12 antitank guns and 6 mortars 81-mm.

The mechanized regiment will consist of one tank battalion and one armored-car battalion, with a total of 1,680 men, 30 tanks, 12 armored cars and 4 mortars.

The artillery regiment will consist of three battalions of three batteries each.

The entire division will consist of 10,500 men, 1,000 vehicles and 50 tanks.

(*Bulletin Belge des Sciences Militaires*, March 1938)

The army authorities have decided to change military uniforms.

Among the renovations projected, it is stated that coats will be tailored so that the collars may be turned down or up as the wearer desires while the so-called "fighting caps" now being used by the soldiers at the front will be adopted as the regular military caps. The caps hitherto used will be reserved for use on ceremonial occasions and parades. Officers' rank will in future be indicated by marks on the collar where formerly the regimental marks were placed. The latter will in future consist of a badge to be attached to the breast. Soldiers' shirts will in future be of a light brown color, similar to those of the Nazi uniforms.

LITHUANIA

Military strength:

Population: 2½ millions; compulsory military service.

Army: 21,000 officers and men, also 55,000 members of a rifle association, trained under direction of the government.

Air Force: 1,520 men.

Navy: One patrol vessel.

(*League of Nations Armaments Year Book*, 1937)

MEXICO

Historic Chapultepec Castle, the residence of rulers for three centuries and before that the pleasure palace of Montezuma, the last ruler of the Aztecs, has been turned into a public museum by President Cardenas. All previous Presidents of Mexico have lived in Chapultepec Castle, either permanently or for part of the time. The castle occupies the crest of a hill a mile and a half from the national palace and stands as a sentinel overlooking Mexico City.

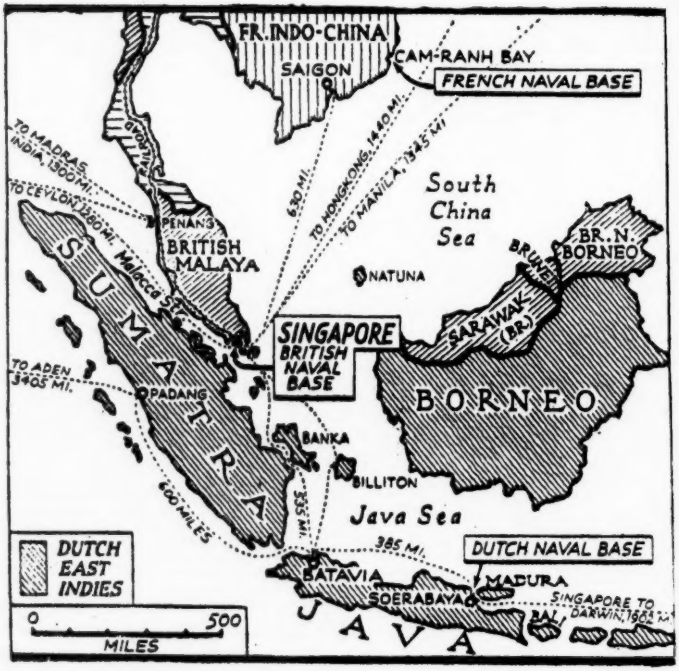
On March 18, President Cardenas announced in a nationwide radio address that the government had decided to confiscate all the properties belonging to the foreign oil companies. This property is estimated at from $400,000 to $450,000, at current rates amounting to 1,500,000 to 2,000,000 pesos.

Pan American Highway:

The Pan American highway extending 765 miles from the Texas border at Laredo to Mexico City was officially opened to tourist traffic in July 1936. According to reports this highway and other principal motor roads are patrolled by alert motorcycle police, who are instructed to aid motorists in all emergencies as well as to enforce highway laws.

THE PAN AMERICAN HIGHWAY, MEXICO

NETHERLANDS



The Netherlands government has completed preparations to thwart any attempt by a foreign power to seize the rich oil resources of Borneo and other parts of the Netherlands East Indies. Its defense efforts are being concentrated on enlarging its air and naval forces.

NICARAGUA

Work has been begun on the Nicaraguan section of the Pan American highway, with the cooperation of the United States, by the construction of three bridges. Work on the Managua — Tipitapa highway and on the National Palace continues without interruption and the waterworks for Managua is almost completed.

(*Pan American Union Bulletin*, April 1938)

NORWAY

The trade agreement signed by the Oslo convention states — Norway, Sweden, Denmark, Finland, The Netherlands, Belgium and Luxembourg — at the Hague in May 1937, will not be continued in all its provisions beyond July 1, 1938, when it expires.

PANAMA

The Pan-American Olympic games were held at Panama City last February. Practically all Latin American countries were represented.

PARAGUAY

Paraguay's new Minister to the United States is General Jose Felix Estigarribia, Commander of the Paraguayan forces in the war with Bolivia over the Gran Chaco.

The General, of Basque descent, is of medium stature, swarthy, darkeyed. He was born in Paraguay on 21 February 1888. In Paraguay and Chile he learned the fundamentals of military strategy and tactics, then in 1924 he went to France and matriculated in the Ecole Superieure de Guerre from which he was graduated.

He was a major when the long smoldering dispute was first carried to the battlefield in 1932. A few months later he distinguished himself by leading the division which recaptured Fort Baqueron and was promoted to Colonel. Probably the best trained of all Paraguay's military officers, he was promoted to General and assigned to command the nation's army. Before another year had passed, he had become the most brilliant leader of the "Green Hell" war.

(*Washington Post*)

PERU

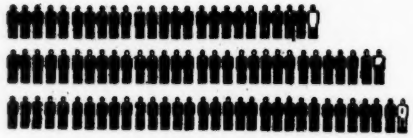
Highway construction is being actively pushed under a three-year plan and it is anticipated that the 800-mile Lima — Arequipa highway will be completed before the expected date.

The proportion of laborers used in the various industries is shown in Figure 1.

Sugar Industry, 1936

Mining, 1936

Highway Construction, Sept. 1937



PERUVIAN WORKERS IN VARIOUS OCCUPATIONS

POLAND

Population: 34 million, compulsory military service.
Army: 283,000 men and officers.
Air Force: 7,919 men.
Navy: Two destroyers and two building; three submarines.

It has been reported in the Polish press that the free city of Danzig has decided, at a special meeting of the newly formed Danzig Air Defense League, to organize its own air force.

PORTUGAL

The government of Portugal on May 3, announced a new naval building program involving expenditures of 2,500,000 pounds sterling (about $12,500,000) would be begun immediately.

British Mission:

Rear Admiral Woodhouse, Captain Field and other members of the British Mission to Portugal, arrived in Lisbon 20 February 1938. This mission has been sent for the purpose of assisting Portugal in reorganizing its army.

(*The Aeroplane*, 23 February 1938)

RUSSIA

Navy:

Russia has established this year a Commissariat for Naval Affairs, apparently for the purpose of building a modern navy. The major Soviet effort in recent years has been the building

of submarines, and undoubtedly the Soviet Union has acquired a formidable submarine fleet. The Soviet Union has more than 25,000 miles of vulnerable sea frontier, almost equally divided between Europe and Asia. It has six entirely separate sea fleets: The Baltic, the White Sea, the Caspian, the Black Sea and the Far Eastern.

The construction of the Russian fleet is proceeding under such secrecy that very little information finds its way out of Russia. The latest information received is the launching of the aircraft carrier *Stalin*. This ship carries 22 airplanes and displaces 15,000 tons. In addition, construction has been completed on the cruiser *Kirov* of 8,000 tons displacement, which has a speed of 38 knots, and nine 7-inch guns. Three more of this same type are now under construction.

The Baltic Sea Fleet is stationed at Kronstadt. In the Arctic Ocean work on the new naval base "Poliarnoie" is proceeding slowly. The White Sea Canal makes possible passage of ships between the Baltic and Arctic Ocean, which cannot be managed in any other way. Submarine service in the Baltic Sea has, in addition, been increased.

Aviation:

The air line between Berlin and Moscow was discontinued by the Soviets about a year ago, in order to prevent German pilots from flying over Soviet territory. In Russia, where everything is in the government's hands, no privately owned planes exist.

Cavalry:

According to reports Russia maintains four active cavalry corps with a total strength of at least 60,000 horses, in addition to large mechanized units.

Mechanization:

According to the Polish press, the Russian mechanized brigade consists of:

27 armored combat tanks
225 combat tanks
6 motomechanized artillery sections
1 mechanized artillery group of two batteries.

SALVADOR

On August 10, 1937, Salvador withdrew from the League of Nations for reasons of economy.

SIAM

According to reports, the repeated story that Japan is building a great new strategic canal across the Isthmus of Siam as a challenge to England's great naval station at Singapore is a myth. A canal across Siam would shorten Japan's sea route to the west and reduce the effectiveness of Britain's fortified base of Singapore; however, there are enormous technical and physical difficulties, in addition to the great cost involved.

Siam will use tame elephants to haul heavy guns and perform other similar services in military camps.

SPAIN

The Spanish insurgent cabinet, on May 4th, ordered the re-establishment of the Society of Jesus in the territory it governs. Generalissimo Francisco Franco's ministers approved a decree setting aside a government edict which, on January 23, 1932, dissolved the Spanish Jesuit order and confiscated its property.

The decree dissolving the Jesuit order in Spain, where it was founded almost 400 years ago by Ignatius Loyola, and confiscating its property in the name of the state, was promulgated during the Presidency of Niceto Alcalá Zamora. Property estimated by Jesuits at about $30,000,000 was confiscated, mostly schools, residences, convents, publications and charitable and social institutions. Some of the schools held world-wide recognition. The then new republic's more radical political elements long had been at odds with the Jesuits, whom they accused of influencing the decisions of many of Spain's earlier monarchist governments.

SWEDEN

The backbone of Sweden's military strength is the Bofors works at Karlskoga, County of Cerebro, a huge complex of

mines, furnaces, foundries, forges, steel mills, workshops and laboratories. Nearby at Bjorkborn, lies Bofors-Nobelkrut, Northern Europe's biggest explosive factory, founded in 1893 by Dr. Alfred Nobel.

In the opinion of military experts all over the world, Bofors ranks foremost among munitions makers, particularly antiaircraft artillery, where Bofors leadership is undisputed. Much of this prestige is due to the newly developed but already world-famous 40-mm automatic antiaircraft gun which was first presented to the Swedish Navy in February 1936 and forthwith attracted the attention of all the great powers engaged in the armament race.

(*New York Times*, 6 February 1938)

SWITZERLAND

The Federal Council (Cabinet) has submitted to Parliament a suggestion that the commander-in-chief of the army in case of war, be elected by the council itself, instead of by Parliament, as at present, to speed defense. It was recommended that the term of military service for recruits be extended from three months to a longer period, perhaps six months. It was proposed that the annual military service of men who had passed the recruit stage be extended from thirteen to eighteen days a year, and that the service of frontier troops be increased by six days every two years.

TURKEY

Kemal Ataturk is pushing a $170,000,000 five-year "arm for peace" program. This plan provides for home production of shells, gas masks, radio equipment for aircraft and scientific instruments for aircraft and artillery, meteorological stations and airdromes. The plan is a skeleton of a vast war industry, to be speeded up as the country's economic condition improves. The key point of the Turkish scheme is eventually home production of arms and munitions that the country may need to make it safe from attack.

URUGUAY

The interior ministry announced March 27th that General Alfredo Baldomir was chosen President of Uruguay at the presi-

dential election to succeed President Gabriel Terra by a plurality of more than 28,000 votes.

Dr. Cesar Charlone was elected Vice-President. Both were candidates of the government's Colorado Terrista Party, which was split into two factions. Women voted for the first time in Uruguayan history.

General Baldomir, who is President Terra's brother-in-law, is an architect, soldier and former War Minister.

VENEZUELA

Two gunboats, the *Orinoco* and the *Urdanito* have been built by the Oteso — Termi — Osland yard at Muggiano. They are vessels of 625 tons, with a speed of fifteen knots and an armament of two 4-inch and one 3-inch guns.

(*Naval Institute Proceedings*, May 1938)

THE WORLD WAR

Memory Test

1. What was the number of men that served in the armed forces of the United States?
2. How many Army Officers?
3. How many divisions were sent to France?
4. (a) What month has the highest troop-carrying record?
   (b) The troop returning record?
5. (a) From what American port did most of the troops sail?
   (b) Where were they landed?

(ANSWERS ARE GIVEN ON LAST PAGE)

FOREIGN-LANGUAGE ARTICLES

Digests of important articles from foreign military periodicals; the remaining articles for each magazine are listed in Catalog of Selected Periodical Articles.

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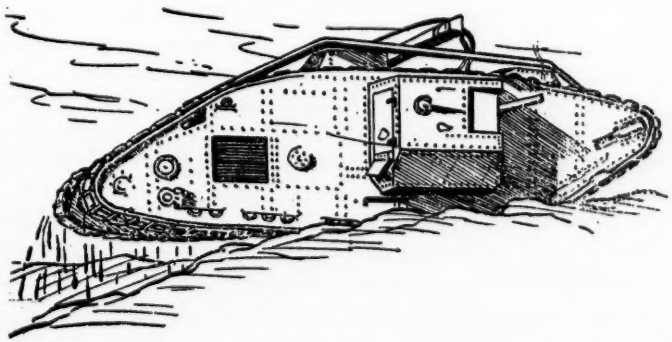
CAMBRAI IN RETROSPECT (20 November 1917)

"Rückblick auf 'Cambrai'." Condensed from *Die Kraftfahrkampftruppe*, November 1937.]

By Captain H.N. Hartness, Infantry

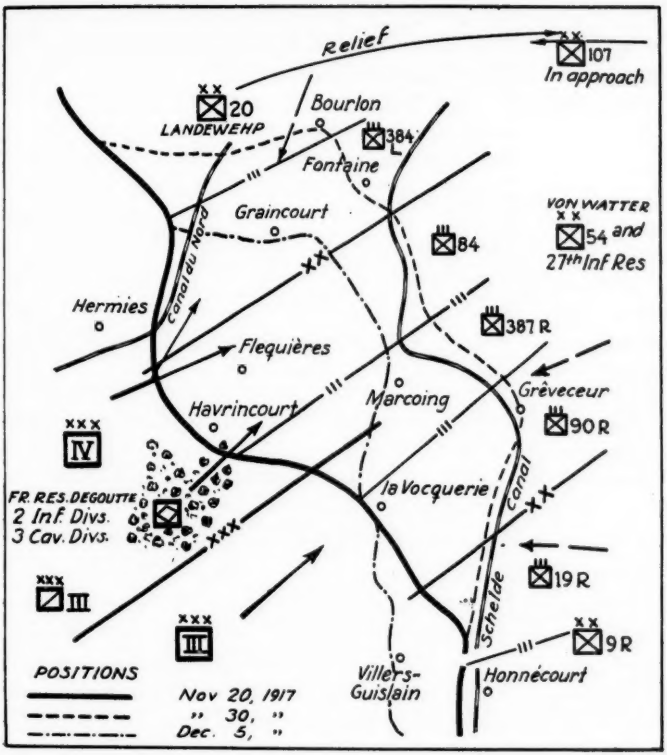


Autumn 1917: The 12th Isonzo Battle had forced the Italians to relinquish large areas between Dalmatia and the Upper Brenta; the hostile South Front was in danger and demanded both French and English reinforcements from the West Front.

But France was undergoing one of her most trying hours; she had not yet overcome the mutinies in forty-five front-line divisions following the battles on the Chemin des Dames and in front of Arras. Extremely brutal and terrific had been the sacrifices in combat with the unbelievably brave and strong German forward lines. In the east the Russian steam roller had been brought to a standstill; it had not been able to recover from the pitiless strokes of the German divisions and now awaited the end in Brest-Litowsk. Paris and London were surprised, and in those two cities there was the growing belief that perhaps the Central Powers would achieve the final victory. The battle in Flanders had not brought the expected relief to the Entente. The attack there was brought to a standstill in the mud. The British were forced to abandon their planned attack against the Schelde and the German right wing. The French were forced to dispatch six infantry divisions to the Piave. Based on these considerations, England and France recognized that something must be done in a hurry in order to equalize the apparent superiority of the Central Powers. Therefore, Sir Douglas Haig, the British commander, decided to launch a surprise attack supported by the most modern of weapons, the tank, with the purpose of breaking through at Cambrai. It was hoped that this attack would break the fixed lines of the Western Front and roll up the German position. With this plan Sir Douglas Haig set not only a tactically feasible but also a strategically valuable operations objective for his attacking divisions. At that time the Cambrai salient was a quiet sector; it served as a rest area for those who had been engaged in front of Arras and in Flanders. It served also as a front upon which those divisions which had been serving in the east and had been shipped to the Western Front had the opportunity of accustoming themselves to the methods of combat employed on the Western Front.

The order issued by the British 51st Division read as follows: "The infantry, employing hand to hand combat and supported by tanks, will break through the hostile defensive position. Through this gap cavalry will attack in order to seize Cambrai, the Bourlon Forest and the crossings over the Sensee River, and to cut off those troops who hold the German lines between Havrincourt and the Sensee River."

English and French forces were employed as follows:



British III Army Corps:

6th Infantry Division
12th Infantry Division
20th Infantry Division
29th Infantry Division.

British IV Army Corps:

36th Infantry Division
51st Infantry Division
62d Infantry Division.

British III Cavalry Corps:

1st Cavalry Division
2d Cavalry Division
3d Cavalry Division.

French:

129th Infantry Division
170th Infantry Division
3d Cavalry Division
4th Cavalry Division
5th Cavalry Division.

Tanks — in 3 waves:

1st wave.....210+62
2d wave.....120
3d wave..... 48+36.

This force was opposed on the Cambrai salient front by the following German units:

20th Landwehr Division: 9th Ersatz Infantry Brigade of 3 regiments
54th Infantry Division: 108th Infantry Brigade of 3 regiments
9th Reserve Division: 18th Reserve Brigade of 3 regiments.

The 27th Infantry Regiment of the 54th Infantry Division was held as Army Reserve.

From the above it will be noted that 7 British infantry divisions and 2 French infantry divisions with 6 British and French cavalry divisions in reserve plus 476 tanks in the attacking echelons attacked over a front of 9,700 meters and were opposed by elements of 3 German divisions, only one of which could be considered as a regular division.

Although the boundaries indicated for this attack embraced a front of only 9,700 meters, the actual developments in outflanking action soon exceeded this frontage and the attack spread itself to the north as far as Pronville and to the south to Catelet.

By increased fire activity and reconnaissance in force in various areas of the North Front, the British attempted to screen their preparations and the actual area of attack. Fog arose daily in the low ground from 12 November 1917 on, and prevented German observation into the hostile terrain. Consequently, efforts were made by the Germans by strong reconnaissance in force to gain information of hostile activities. But it was not until shortly before the attack that the 84th Infantry during the night 18-19 November, was able to secure British

prisoners from whom initially not much was learned. Nevertheless, the interrogation of these prisoners had produced some information and indicated at least the planned direction of the British and French attack. Yet the time of the beginning of the attack remained unclear, and the tremendous employment of troops and matériel remained also unknown, and it is needless to say that the Germans did not expect the force that was launched against them.

Shortly before the attack and almost unnoticed, protected as it was by the fog, the night, and the artillery fire, the British massed their tanks and assembled them in the thick woods of Havrincourt. It was only just before the tank attack — the infernal concert of all calibers having previously been let loose — that the tanks moved forward to their attack positions. These positions lay behind the second British line where all preparations had been made to conceal the tanks, such as protective nets and other camouflage measures. It was from this area that they advanced to the attack, followed by the infantry.

At 7:30 AM, 20 November 1917, artillery and Stokes mortars began their firing and after it was believed that this bombardment had weakened the German defenders sufficiently, the heavy tanks were set in motion; they tore down the remainder of the wire obstacles, crossed ditches and trenches, broke trees and walls, buried machine-gun nests, rolled over the infantry lines opposed to them and pushed on to the Siegfried position, which was reached about noon. They followed the general direction: Boursies — Fontaine and attempted, during the further course of the combat, to reach the outskirts of the city of Cambrai.

After the initial surprise was over, the German infantry in close combat and counterattack regained its superiority and remand its position against tremendous odds. The tank mass — for that period tremendous — was the basis of the British hope for victory. In fact, based upon this material superiority, the British had believed a great victory to be achievable. Sir Douglas Haig himself wrote in his memoirs: "Based upon the German force in front of my attack and upon the success which we had had in maintaining secrecy during our preparations, I had believed that the hostile defensive positions would be taken in the first tank advance. I had well grounded hopes that the enemy and his power of resistance must be so weak behind his defensive line for a sufficiently long time, that we would be in

a position fully and quickly to overrun this position on the first day."

Most of the German tanks had painted upon them an ace of spades upon a white field and many had such notable names as Conqueror, High Flyer, Iron Duke, Black Arrow, etc.

The German infantry attempted to stop the advancing tanks with machine guns and hand grenades but without any appreciable success. The German artillery on the other hand was able to destroy or to stop a number of the tanks. The cannoneers employed direct fire using bore sighting or by sighting along the top of the barrel.

Exactly 100 tanks fell a sacrifice to the German defense at Cambrai. Sir Douglas Haig wrote as follows: "Several direct hits upon our tanks were aimed by a German artillery officer who alone remained with his battery and personally served the field piece until he also fell. The great bravery of this officer excited the admiration of all ranks in the British Army."

The commander of a British division caused his guard troops to be presented in front of German prisoners, as a token of his esteem for the brave defense which had been made by the Germans.

That a great success could have been expected by the British is warranted, but the success, thanks to the heroic defense, was only a success at the beginning. German reserves were able to stop the British advance. By the reckless employment of new and fresh units the British sought to deepen their penetration and to force a breakthrough. Whole cavalry brigades dashed against the German defensive only to be thrown back with great losses, and here at Cambrai one of the last great mounted attacks broke down.

Although on rather a broad front and in some places to a depth of 5 or 6 kilometers, the attack had broken into the German lines, neither this attack nor its continuation reached the objective assigned initially. Nowhere was the attacker able to fully break through the German lines. Attempts on the part of the British attack and bombardment squadrons to destroy the German lines also proved fruitless.

Sir Douglas Haig came to the realization that this attack by tanks and infantry would not bring his plans to fruition. Only the artillery duels continued on until early morning of 30 November 1917, when the Cambrai attack was renewed. At this time it was not the British, but the German infantry who advanced.

In London the bells of victory ceased to toll, and in Paris the populace held its breath.

There follows a brief laudatory account of the German counter strokes, followed by a vivid comparison of the plenty of matériel, food, clothing, tobacco, etc., found by the Germans in the captured British areas with the lack of essentials faced by the Germans in 1917.

The author allows himself to compare the scenes of 1917 in the Cambrai area with those he has just witnessed as a visiting tourist in 1936, drawing a sharp contrast between the destruction then and the peace now. But he returns to his remembrances and to pride in the fact that today Germany is not defenseless in antitank means against mass tank attacks.

On 9 September 1916, during the battle of the Somme, when the first English tanks appeared unexpectedly and as an unknown weapon in front of the badly shot up lines of the 27th and 108th Infantry Divisions, the tank, in its present-day conception, was born. Moreover, it is interesting to note that the then artillery commander of the 27th Division, Colonel Freiherr von Watter, a brother of the Group Commander, Lieutenant General Freiherr von Watter, was the commander against whose troops the tanks at Cambrai were primarily directed.

And as the British tank attack on 23 November 1917, near Flequieres, was broken and the antitank defense weapon received its first baptism, there was present an elder brother of Lieutenant General Freiherr von Watter, this brother being the commander of the 108th Artillery Regiment, whose batteries caused considerable losses to the English tanks between Flequieres and Marcoing. This first success against the tank attack was no accident. It rested upon the knowledge and the experiences of these three Freiherr von Watter brothers coupled with that of Major Gädecke, G-3 of the 54th Division. In the early part of 1917 the commander of the 108th Artillery Regiment had directed practice firing against dummy tanks. At that time these dummy tanks were pulled by means of long wires by horses. In retrospect, it is interesting to note how early Lieutenant General Freiherr von Watter had occupied himself with this tank question and how very disappointed he was some years later, as commander of Defense District No. 6 in Münster, that the Versailles Treaty prohibited him and the German Army from using this new weapon (tanks) against the Red Army. But these three brothers Freiherr von Watter — one a commanding gen-

eral, two artillery commanders — have the satisfaction of knowing that the tank attack at Cambrai broke down because of the spirit of the German defense and because of the training of the German artillerymen.

When and how the modern tank with its great mobility and fire-power will solve its proposed tasks must be left to war to determine. No one denies that tanks can have decisive importance. The knowledge and recognition of this, of course, rests upon World War experiences even though the principles of the tactical employment of tanks in the various countries, as for instance France and England, are leading along different paths. The basis for the tactical employment of tanks in these two countries may rest upon: (1) mental approach; (2) strategical conception; (3) boundary considerations; (4) conception of combat and space, and similar considerations.

Let us consider here the words of Clausewitz: "For nothing in the world so much as the so-called strategy lacks so many fundamentals, that is, so much of the entirely true and indubitable." Or: "What is correct and proper in strategy is the work of a field commander who has genius and who penetrates and weighs in one glance a mass of different conditions and proportions." Tactics and strategy, that is, the art of combat leadership on the one hand and the art of the conduct of war, the proper evaluation of the entire situation with respect to the war as a whole on the other, must point the way upon which success with the tank must be expected. To what extent our former enemies laid emphasis on the importance of tanks is well seen from the conditions laid down by the Treaty of Versailles.

If we wish to evaluate the battle experiences of the World War, we must gather together that knowledge and those experiences accumulated in war by those people in those places who knew the situation, the conditions, and their relationship. What immediately follows were the conclusions arrived at and measures taken during the World War:

(1) The antitank defense must be active and passive. Antitank defense guns must be brought into position close behind the infantry. It is first of all the mission of the infantry to stop the hostile infantry advancing with the tanks, whereas the combat against the tank is the mission of specified elements of the artillery and antitank weapons.

(2) We must not shy at a temporary weakening of artillery support in order to reinforce the antitank defense weapons with

artillery. The laying of mine fields and the use of broad, deep ditches and trenches must be required where it appears necessary and possible. Mine fields are particularly unpleasant to tank crews and can cause considerably delay.

(3) The spattering of lead particles through the eye slits in tanks is effective. During the World War a considerable number of the tank crews in French tanks were wounded by these lead particles.

(4) Hand thrown demolitions are effective against crews and in destroying treads. The French Chamond and Schneider tanks can be immobilized by armor-piercing rifle ammunition.

(5) Watercourses prevent the passage of tanks. Broad ditches and trenches prevent tank crossing only when no fascines are used. Natural light fog favors the approach and movement of tank units. Antitank readiness is essential and must be maintained during fog and at dawn.

(6) The penetration depth of 15 kilometers (average radius of action) suffices for a breakthrough and the employment of cavalry. A tank breakthrough can only be exploited by the rapid follow-up by strong forces. Success is somewhat assured when the movement of the attack can be held as a surprise.

(7) The throwing from planes of articles and statements in masses in order to instill fear of tanks into the hostile troops is often employed. The assembling of these articles and reassurances to the troops must be carried through.

The above-mentioned experiences and knowledge obtained during the World War have today a certain importance even though a different tactical employment of modern tank units indicates the collection of new experiences. Here and there we hear the opinion expressed that the organic antitank company of the infantry regiment should be attached to the division in the defense and that this company should be employed from the division point of view, organized in depth in and behind the main line of resistance. With this point of view the author disagrees. He also disagrees with the point of view that in the defense the infantry does not need antitank defense so very greatly because the infantry can either dig itself in or can retire. He asks the question: If the tank unit has as its first objective the artillery and not the infantry, when then does the tank commander begin his tank combat, in general, with tanks equipped with machine guns? Here it is worth while to direct our attention to the second battle at Fontaine, 11 November 1917,

where two newly employed regiments of the same division (119th Infantry Division), refuted the contention that the infantry in the division requires less antitank protection. A withdrawal of the infantry from the forward areas is difficult, especially when the tanks can continue to fire without being fired upon by armor-piercing weapons. A comparatively small displacement to a flank by a small unit may lead to the withdrawal or retirement of larger elements which in turn can disrupt a great deal or everything. And to hinder this possible dislocation and to provide the infantry the necessary antitank defense it is essential that armor-piercing weapons be placed in the forward infantry zones.

As it was in the World War, so will it remain in the future, at least so far as we can see and in the face of all modern technical means: the infantry must do the work forward and all other arms are provided for the purpose of easing this infantry task. He who believes in this conception will, in every situation, find the line upon which the necessary cooperation and the essential amount of support must be given. It is a matter for the division to further this necessary cooperation of the arms and when necessary to guarantee it by orders and inspections. If the tank attack does not consider the elimination or the destruction of the infantry in its attack, it cannot expect a full success. Therefore, we must remain with the conviction that the infantry be protected by armor-piercing weapons. It is especially important that the art of surprise, occupying unrecognizable fire positions, be employed by the antitank companies, and a special emphasis must be laid upon the utilization of the terrain and aerial photographs by all members of the organic infantry regiment antitank company.

One cannot be assured that there will always be sufficient natural cover present for the antitank guns. Therefore, the antitank defense man must be a master in the art of camouflage and artificial cover. It is only by this means that positions can be found in the forward lines which will remain hidden to the hostile reconnaissance and observation agencies. Thus we shall meet the enemy with our own most effective weapon — surprise. But do not be mistaken and let the desire for cover work disadvantageously to the fire effectiveness of the guns. Surprise and fire effect are the primary elements which must be sought and ways for which will be found. The principle of destruction is based upon the principle of surprise. The correct choice of fire

positions, employing the terrain and its natural forms and growths, to obtain the maximum concealment both from the ground and the air, and the location of dummy positions are fundamental and must be learned so that the good antitank weapons will not be discovered and eliminated by the hostile artillery prior to its own employment.

It is obvious that work accomplished during peace time cannot provide the same experiences and the same knowledge that are accumulated during war. Many varying opinions are expressed which are theoretical and which must be theoretical. No matter how closely we seek to correlate our peace experiences with battle experiences, especially when we seek to correlate experiences for weapons developed since the last war, there is always something lacking. When war comes there will emerge some element, some effect which in time of peace was not fully explored or which could not have been fully developed. Theoretical considerations are valuable but they are not the final proof. It is only in war that these considerations can be practically tested. Neither the battles in Abyssinia and Spain nor the results in China offer sufficiently thorough tests in so far as tanks and antitank weapons are concerned. Therefore, we must go back at least in part to those experiences and that knowledge obtained during the World War as a basis of part of our theoretical considerations. And let it not be assumed that all which was developed and learned during the World War is a thing of the past and without value.

We often hear of the number of hits obtained under simulated battle conditions by the antitank weapons. Without doubt it is necessary to increase the number of shots per minute and to increase the activities and capabilities of the gunners by exercises so that we can speak of a semi-automatic service of the piece, but we must be careful in evaluating too strongly a sixty to eighty per cent percentage of hits in time of peace as a percentage to be expected in time of war against a modernly equipped enemy. To do so will probably result in a great disappointment. In time of peace and today we lack the corresponding percentages about the effects of the enemy's weapons, about the actual and morale impressions of the battle as well as those imponderables which are difficult to express but which are able to influence the battle worth of troops schooled only in peace time.

Psychologically speaking, the author says that in his opinion the term "antitank defense" has not been happily chosen because the principle of destruction is not sufficiently emphasized in this term. It is his belief that the antitank weapon must carry with it to the fullest extent the conception both in itself and in its designation this principle of destruction.

Let us not forget Cambrai: All the calculations of the British were strategically and tactically correct, but they had forgotten the most important element on the German side — the spirit of the German soldier. In the past and in the future so will the spirit play a dominant role.

TANKS AT CANTIGNY AND IN THE MANGIN COUNTERATTACK OF 11 JUNE 1918

["Les chars dans la défensive: Avec la 1re Armée (avril-mai 1918); la contre-attaque de Méry-Belloy (11-13 juin 1918)." By Lieutenant Colonel Perré and Major Aussenac. Condensed from *Revue d'Infanterie*, January, February 1938.]

By Major R.G. Tindall, Infantry

The action of French tanks in defensive operations in the spring of 1918 is studied in great detail in two articles in the January and February 1938 issues of *Revue d'Infanterie*, by the French authority, Lieutenant Colonel Perré, assisted by Major Aussenac. Of the several operations described, the American attack at Cantigny as seen from a tank viewpoint, and the Mangin counterattack of 11 June, which proved that tanks were suitable for open warfare, are of the greatest interest.

The article is based on the most careful research and the actions of numerous individual tanks are described. The authors also show how the French tank doctrine developed during this period.

The French command felt that the first offensive action of American troops must be successful and the conditions of the Cantigny attack were carefully studied. The terrain (see Map No. 1) was considered quite suitable for the execution of a limited objective attack. Cantigny and the orchards and gardens surrounding it extended on the southwest slope of a north-northwest—south-southeast crest. At the south of the village another parallel crest was held by the Americans and a change of direction of the valley separating these two crests closed the horizon some 500 meters southeast of Cantigny. Thus the attackers could operate in a closed compartment of terrain, well seen from the American position, and excluded from the view of distant hostile observers.

It seemed certain, the author writes, that an attacker could capture this compartment, if the necessary material means were employed. This was actually done in generous style; for an attack on a front of 1,600 meters approximately 20 battalions of artillery were in action, permitting a short violent artillery preparation, powerful direct support of the infantry, efficient neutralization of the hostile batteries, and isolation of the zone to be conquered.

Preliminary reconnaissance showed that the slopes south of Cantigny were impracticable for tanks because of sunken roads, and consequently the tank support was limited to one group of 12 tanks which was charged with the support of the attack against the west edge of the village and outflanking it on the north. Initially in the zone attacked by tanks there would be one tank to each 70 meters of front and in the latter part of the attack, one tank to each 50 meters.

The battalions of the American 28th Infantry had some ten days in which to establish liaison and train with the French tank group (Captain Noscereau) designated to support the attack. In addition to a half company of the French 262d Infantry, which normally accompanied the group in an attack, twelve American French-speaking soldiers were attached to the group five days before the attack. They were to be utilized as liaison agents with the tank commander and subordinates and with the battalion and company commanders of the infantry unit which was to attack the west edges of Cantigny. A tank lieutenant

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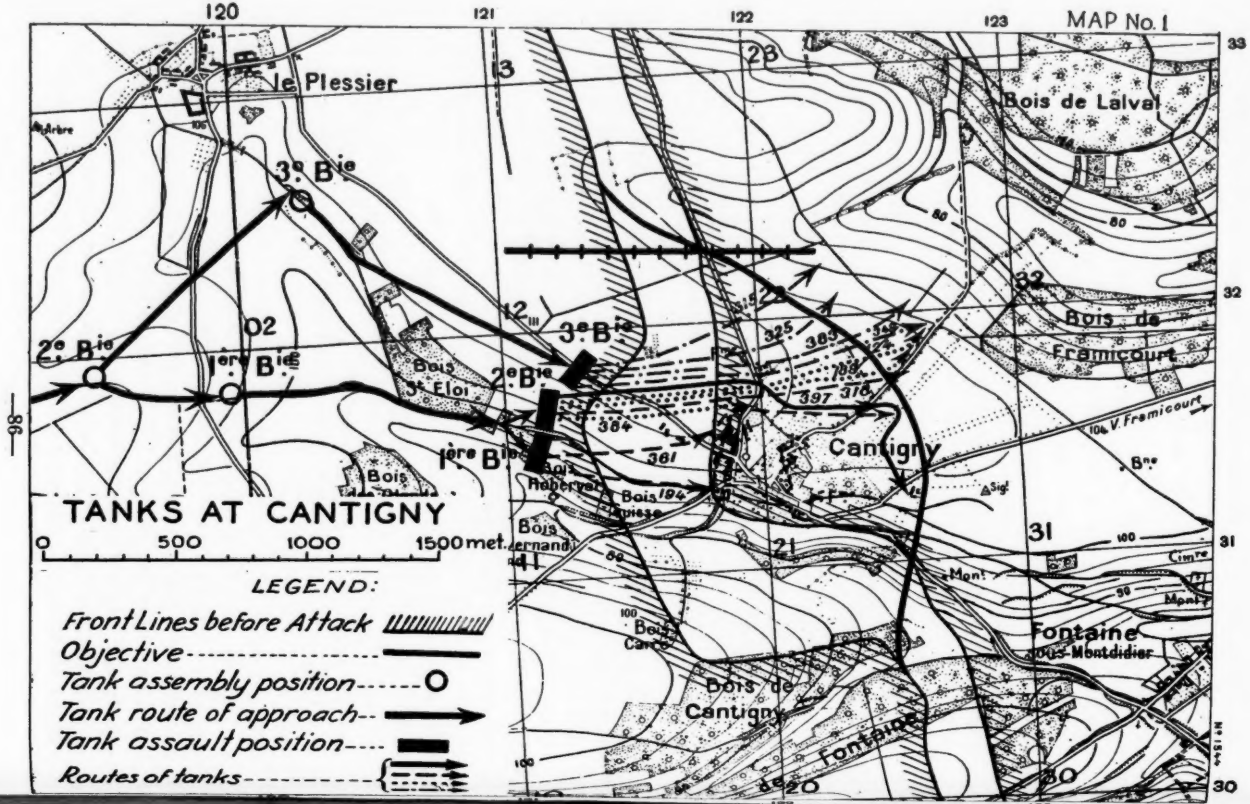

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was sent as liaison officer to this battalion and another to the regimental commander of the 28th Infantry and the most careful reconnaissances were made by the subordinate commanders.

The tank group left its station (to the west of the map) at 11:00 PM, 27 May, and reached assembly positions as shown on Map No. 1 about 3:30 AM. In each battery of four tanks, one tank towed a trailer carrying some 90 gallons of gasoline. An assortment of spare parts was constituted in a quarry at 03.25 and an emergency repair post later was pushed forward on the road: Plessier — Cantigny.

At H-55 (5:50 AM) the three tank batteries (as units of four tanks were then called) left their assembly positions and about H-15 reached their assault positions as shown on the map. At H-5 the tanks moved forward, taking advantage of the fact that hostile observatories had been blinded by smoke and the dust raised around Cantigny by shell bursts, as well as by a slight fog which was blown toward the American lines.

The 1st Tank Battery (Lieutenant Mainardy) had the mission of helping an American company reach the west edge of Cantigny. It was to enfilade the south edge of the village, if this proved necessary, and then to assemble in reserve at the northwest edge. At the start this battery was reduced to two tanks, tank 97 having had mechanical difficulty at the assault position and tank 318 having been attached to the 2d Tank Battery to replace a tank of that unit which had beem immobilized in the assembly position. (The commander of tank 97, Lieutenant Rouillot, took his crew and a machine gun and moved with the American infantry to the final objective.)

Near the southwest crossroad of Cantigny, tank 194, without having to fire, dispersed several groups of Germans who were soon captured by American infantry which penetrated the orchards. The tank remained in surveillance a few minutes, prepared to open fire on the south edge of the village, and then seeing that American infantry had reached that point, moved to the designated rallying point.

Tank 361, followed closely by American infantry, destroyed a machine gun at 18.15 near the road: Plessier — Cantigny, and then went to the northwest corner of the village where it remained in surveillance for a while.

The 2d Tank Battery (Lieutenant Chenu) was to precede an American company to the northwest corner of the village and the cemetery, and then neutralize the north edge of the

orchards. Tank 384 reduced a hostile nest in the isolated house situated at the northwest corner of the village; it later became stuck in a shell hole. Tank 318 of the 1st Battery which had been attached to the 2d Battery, debouched in rear and to the left of 384; it progressed through the orchards and silenced by cannon fire a machine gun at 22.18 and then, attracted to the north by resistance disclosed along the road: Cantigny — Bois de Lalval, it destroyed a machine gun in position in a bit of trench at 26.17. Here American infantry made numerous prisoners. Tank 189 in which was the battery commander, had a little trouble at first keeping up with the eager American infantry which "leaned" on the barrage; however, the tank pushed ahead when abreast of the cemetery, where the infantry was stopped by fire from the orchards. The tank opened fire with its cannon and machine gun in the direction of flashes seen; the enemy fire ceased, and the tank and the American infantry moved to the road: Cantigny — Bois de Lalval. From the hedge along this road came heavy fire; the Americans were pinned to the ground. The supporting barrage passed onward. The tank stopped but had difficulty in locating the resistance. Lieutenant Blancot, liaison officer with the American battalion, ran toward the tank and endeavored to point out the enemy. At first he was unsuccessful. He then drew his pistol and fired toward the enemy. The tank crew recognized the target just as Lieutenant Blancot was killed. The tank opened heavy fire and continued this at close range for some time.

Suddenly the Americans cheered, and rushed forward with the bayonet, led by the tank which crushed through the hedge. By this time tank 124 which had debouched to the left rear of 189 and had then reduced a machine-gun nest near the cemetery, had come up and joined in the attack on the hedge. The hostile fire ceased and the tanks and Americans found some twenty German bodies and an abandoned machine gun in a small trench.

The 3d Tank Battery was to support the infantry as far as the objective and then was charged with surveillance to the north in order to break any counterattack coming from this direction. Tank 349 moved south of the cemetery and executed rapid fire on the northeast corner of the orchards from which hostile fire was being received; it then reached the road: Cantigny — Bois de Lalval and to the left of the tanks of the 2d Battery began to neutralize resistance along the hedge. Tank 383, closely followed by American infantry, moved along the

north edge of the cemetery and the hedge which prolonged it, and destroyed two machine guns near 26.20, one of which was in a silo and the other under an apple tree. It then opened fire upon a third machine gun, which was being dragged forward near 27.20 by four crawling men. Then while the infantry was organizing upon the objective, it fired upon the edges of the Bois de Fremicourt and Bois de Lalval.

Tank 235 passed about 80 yards to the north of the cemetery, destroyed two machine guns with its cannon near 18.19 and then opened fire on a trench on the south side of the ravine. Tank 315 debouched to the left rear of 235, silenced a machine gun near 18.22 in a trench; got stuck in a shell hole, got out after a quarter of an hour's work and reached the objective.

The tank of the group commander 397 at first followed the 2d Battery; abreast of the cemetery he noted that tank 318 had deviated slightly to the north of its assigned direction, and learned that tank 384 was stuck in a shell hole. At this moment the Americans approaching the edge of the village had stopped. The group commander moved his tank to this region, sent orders to tank 361, which by now was in reserve at the northwest edge of Cantigny, to rejoin him and these two tanks led the infantry on to the objective. Captain Noscereau then advanced to 26.14 to ascertain the situation, then moved north along the objective and about 8:00 AM, considering the consolidation of the position by the infantry to be well under way, and his mission therefore terminated, ordered the tanks back.

Of the twelve tanks which the night before had left Visigneux farm, several miles to the rear, ten were back there before noon; one rejoined in the afternoon; only the tank of the group commander, hit by a shell on the way back, was a casualty. Each tank on the average fired 12 shells and 8 bands of machine-gun ammunition. The tank crews had one officer killed and one man gassed, and two of the American liaison agents were wounded. Moreover, the losses of the American infantry during the attack proper were not high.

The author upholds the high command in employing tanks in this attack, and quotes the official report of a tank commander written the day after the attack, as follows:

> "An equilibrium was established in the plans for employment of the tanks and artillery such that the work of the tanks was noticeably facilitated by the quality of the

artillery preparation while the employment of tanks permitted the artillery to reduce the consumption of ammunition, while still guaranteeing the infantry against all possible surprises."

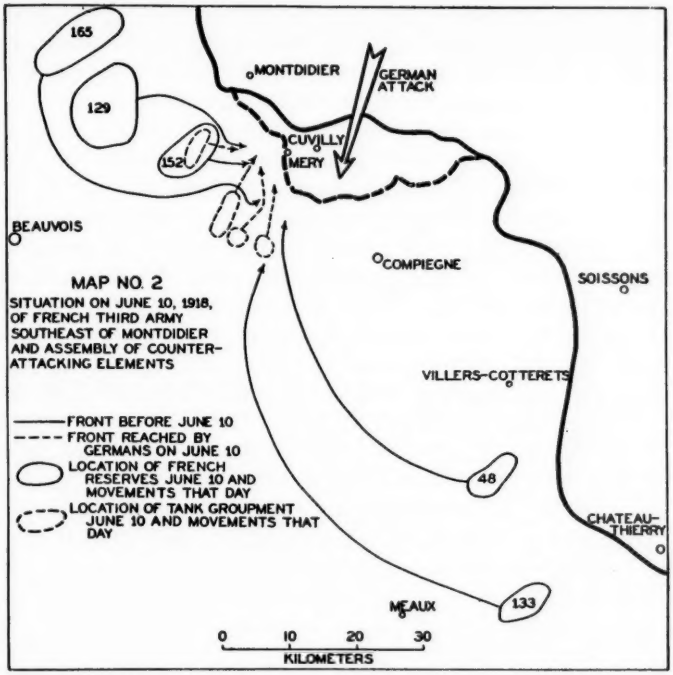
Success undoubtedly was due in part to the abundance of material support, but the author also insists that energy in the execution and perfection of the preliminary plans played a large part also. He pays tribute to a "fine professional infantry, young and dashing, a little upset by this new type of war, but determinedly anxious to do well." He also points out the excellent liaison arrangements and the excellent training of the tank crews.

He considers the capture of Cantigny a splendid example of a tank attack with limited objectives, such as was possible in the spring of 1918. He says that this "little tactical masterpiece" did not achieve the renown in France which it deserves, because of the great German attack of 27 May on the Chemin des Dames which overshadowed it (and incidentally caused the removal of a portion of the supporting artillery from the Cantigny region).

The next article turns to the situation which developed in this general region a few days later. On 9 June a strong German attack struck the French Third Army southeast of Montdidier. (See Map No. 2.) The French held successfully on this day on the flanks of the front attacked but in the center the Germans captured the first position. On 10 June they pursued their advantage in the center and widened the breach on the flanks. Virtually all the French army reserves had been thrown into the fight by this time.

However, General Fayolle, commander of the group of armies, had three fresh divisions west of the salient created by the Germans and General Petain had two other divisions some fifty miles away which could be brought up quickly in trucks from the region east of Paris. A general counterattack was decided upon.

General Mangin was designated on 10 June to organize and command this attack. Mangin was convinced of the absolute necessity of striking quickly and in the afternoon of 10 June he insisted to General Fayolle that the attack must be launched on the morning of 11 June, despite all difficulties, and it was obvious that these would be considerable for the available divisions were widely scattered. General Fayolle approved Mangin's



ideas. He directed the latter to counterattack the advancing enemy in flank in the general directions: Méry — Cuvilly. Because of the instability of the situation, no line of departure was selected.

The 129th, 152d, 165th, and 48th Divisions were to attack in first line with the 133d in reserve. General Mangin likewise was placed in command of all troops in the general sector of the attack and of four tank groupments. These were in excellent condition; however, the problem was quite different from those to which the tank units were accustomed. In a few hours they were going to have to do everything they had been accustomed to do in several days, a long approach march, supply, maintenance, liaisons, reconnaissance, and finally an attack in conjunction with infantry which could only get into position at the last moment.

Rapidity and surprise were depended upon by the French command for success. The air forces were given instructions to protect the preliminary movements from hostile air observation.

The terrain over which the enemy would have to be approached is quite destitute of cover. The divisions, leaving the zones in which they were located during the night of 10-11 June would execute an approach march in their respective zones and move to the attack as soon as they met the enemy. In order to coordinate their actions, the hour at which each division crossed the Montdidier —Wacquemoulin railroad (see Map No. 3) was fixed. These hours from north to south: 9:45 AM, 10:00 AM, 10:15 AM and 10:30 AM, were so calculated that all divisions were expected to reach a general north and south line through Méry at about the same time.

The divisions destined to take part in the attack began their movement by marching or by truck on 10 June. During the night 10-11 June, General Mangin fixed the zones of action of the attacking divisions, and their station at the end of the movement then in progress. Boundaries were grid lines, each division having exactly a two-kilometer front (see Map No. 3).

The four tank groupments were alerted at 4:25 PM, 10 June, and ordered to move generally toward the front attacked, initial destinations being designated. The tank groupment commanders were ordered to report to General Mangin at a corps command post. Before they left, they issued orders for their units movement to the points designated and later, after having received orders concerning the mission of the tanks and their attachments to divisions, they selected assembly positions for each group.

An artillery preparation was to commence at 10:30 AM, 11 June, and it was expected that the actual attack would be at 11:00 AM.

During the night division and tank groupment commanders settled upon missions and orders for the tanks and certain liaisons were realized, and orders given for the action of tank groups and batteries. These are covered in considerable detail by Lieutenant Colonel Perré.

The Germans continued their advance during the night of 10-11 June although the French still resisted. The assembly of the counterattacking troops on the morning of 11 June was favored by a light fog. Most of the infantry got into position in the assigned zones without notable incident; however, the 48th Division only detrucked during the night and although it moved at once, arrived a little late near the line of departure. Some of the artillery likewise only got in position just prior to

H hour and was not well prepared to fire accurately at that hour; in fact, some batteries of the 152d and 165th Divisions did not arrive until the afternoon of 11 June and the morning of 12 June.

The movement into position of the tanks was successful in general. It started late in the afternoon and all movements were completed before daylight. There was little mechanical trouble, and all units were complete when they left the assembly positions.

The groups managed to get liaison with the infantry they were to support, and with the artillery, although this was done imperfectly in some cases. The tanks supporting the 48th Division only established liaison during the action itself because of the delay of that unit. The deployment of the artillery of the 152d Division being likewise delayed, the tank commander in that zone was unable to arrange for artillery support which he considered indispensable, fires against certain antitank guns and against hostile observation posts.

The artillery preparation started on time and woods and villages were heavily shelled, particularly Mortemer, the wood south thereof, Cuvilly, the wood southwest of Ressons, Lataule, Saint Maur Farm. However, the preparation had neither the the desirable power nor precision and besides the high ground to the north of the attack and the region of Conchy-les-Pots where many hostile observation posts and batteries were located was insufficiently treated since the French heavy artillery was located too far back.

Shortly before 11:00 AM the fog lifted and the hostile artillery, which was far from having been silenced, came into action. The 129th, 152d and 165th Divisions crossed the railroad at the prescribed hours and at 11:00 AM were generally abreast of Méry. The tanks were ahead of the 129th and 152d Divisions, but the tanks of the 165th Division were well in rear of its leading battalions. The 48th Division was 30 minutes behind time, but its tanks were with it.

Hostile counterpreparation fires and barrage fires grew more and more violent and after some progress, the progression of the 129th Division on the north became quite difficult. Its zone of attack was perfectly seen by the German observation posts and the hostile reaction rapidly broke the infantry-tank system. The supporting tanks were nearly annihilated and only a few hundred meters were gained in all.

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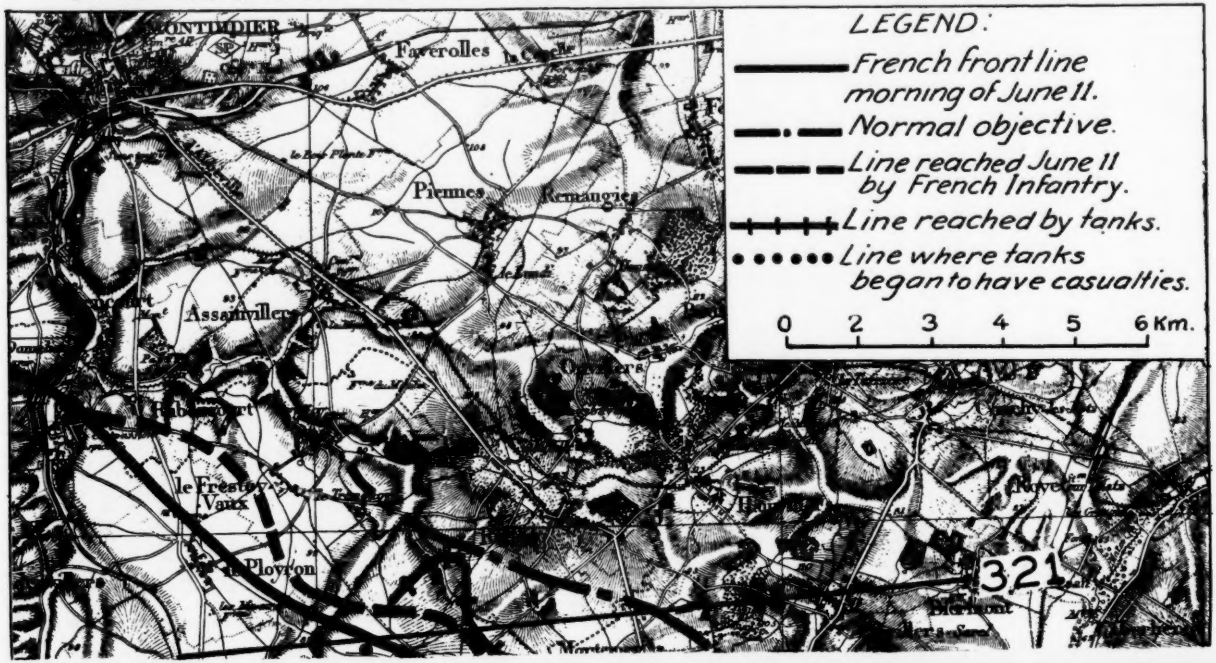
MAP NO. 3
THE MARGIN COUNTERATTACK OF JUNE 11, 1918



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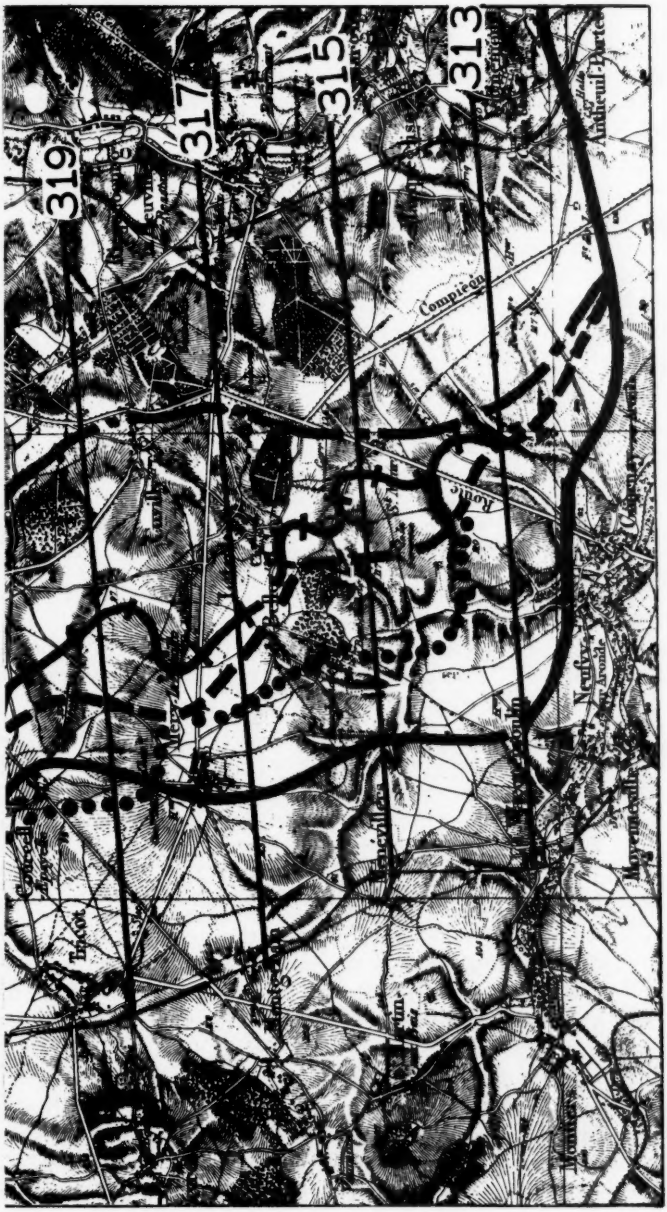
319
317
315
313
Compiègne
Noyon
Roye
Montdidier
Tracy-le-Val
Thourotte
Ribécourt
Lassigny
Andrieul-Porte
Nesle
Ham
Roisel
Péronne

The 152d Division, next to the south, in close liaison with its tanks, captured Méry and pushed on, the tanks neutralizing numerous machine-gun nests and breaking several local enemy counterattacks. However, after passing over the crest southeast of Méry, they came under heavy artillery fire and suffered heavy losses. The infantry also suffered and was brought to a stop. About 3:00 PM a German counterattack was broken by infantry and the remaining tanks, but no further progress was made.

The 165th Division debouched without its tanks; came under heavy machine-gun fire and progressed quite slowly. Finally, between 12:30 and 1:15 PM the tanks came into action, neutralized the edges of Belloy and resistance farther south. By 3:00 PM Belloy had been captured. In the northern portion of the division zone the tanks continued their advance but when crossing the crest northeast of Belloy suffered heavy losses by artillery, firing over open sights. The attack was stopped.

The 48th Division on the south flank, although starting late, quickly captured the high ground northeast of Wacquemoutin, and pushed forward. After considerable progress, the infantry eventually came under the fire of long range machine guns which stopped them. The tanks' advance enabled some slight further infantry progress.

The attack on the entire front came to a standstill between 3:00 and 4:00 PM. On the next two days some efforts were made to develop the success but no great advantage was gained.

Nevertheless, this hastily-mounted counterattack had achieved much of what had been expected. Its progress at most was only 2 or 3 kilometers and the prisoners numbered about 1,000. But just the same, it completely ended the German offensive. The author quotes Ludendorff to show that a decision was made by the German high command on 11 June to suspend the offensive, because of this tank counterattack.

The authors study the actions of the smallest tank groups in detail and show where every tank casualty occurred.

Of 144 tanks which took part in the attack, there were 69 casualties. The losses were particularly heavy in the northern portion of the front. Nineteen of the 24 tanks of the 129th Division were casualties, and 32 out of the 48 tanks of the 152d Division. On the contrary, only 4 tanks out of the 36 with the 48th Division were casualties. The losses were heaviest where the tanks were debouched under the eyes of the German observers in the region south of Orvillers, which were insufficiently

neutralized, and when the tanks moved over the Méry — Belloy crest coming under good German observation at the time when they disappeared from the eyes of the French artillery observers.

The authors estimate the number of tanks which fell victims to indirect artillery fire as at most 20, and believe that all the other losses, 50 to 55 tanks, were caused by the direct fire of the most advanced German light artillery. They consider this quite interesting in view of the fact that the problem of tanks attacking an artillery deployment is one which may be expected to occur again. In this case the tanks approached the hostile artillery piecemeal and after a considerable progression — in fact, all conditions were quite unfavorable to the success of this portion of the attack.

The tanks carried the infantry forward and were quite effective. In fact, even where they were annihilated by hostile artillery fire, the infantry was able to advance until the tanks had been destroyed. On the southern portion of the front, the action of the tanks was particularly effective.

No combat of the war furnished a clearer demonstration of the necessity of coordinating the action of tanks with infantry and artillery, the authors say. They point out the necessity of protecting the tanks and also suggest that the tanks could have participated to greater extent themselves in this protection by preventive fire on suspected localities. The doctrine at the time of the French tanks was on the order of "Don't fire until you see the whites of their eyes," and the authors do not consider that the tanks fired sufficiently in this action. (An average of something more than 20 shells and about 10 machine-gun bands was fired by each tank.)

The big lesson of the tank counterattack of 11 June was that tanks were not merely appendages of trench warfare, but were suitable for use in mobile warfare, and hence had come to stay.

ARMORED, MECHANIZED AND MOTORIZED UNITS OF FOREIGN ARMIES. 1937 IN RETROSPECT

["Panzer-, mechanisierte und motorisierte Verbände fremder Heere. Ein Rückblick auf 1937." Condensed from *Die Kraftfahrkampftruppe*, March 1938.]

By Captain H.N. Hartness, Infantry

The motorization and mechanization of modern armies increases. This article will deal briefly with the developments

made in 1937. Obviously, because of secrecy and other reasons, all developments are not known and cannot be discussed, but the essentials, in so far as official publications and press notices have given information, will be discussed and the necessary deductions drawn and an effort made to determine the directions developments will take in foreign armies.

Tanks and Tank Units

Everywhere the strengthening of tank units and the building of new types are evident. Likewise, reorganization and new types of organization are to be found.

Of especial interest is the great number of new tanks which have already been introduced or which are in an experimental stage. In all of these there is recognized a continual striving after greater perfection. In so far as known, the types are light, medium, and special purpose.

A study of the light tanks indicates a common effort to equip them with armor-piercing weapons (small cannons and extra heavy machine guns) in order to make them suitable for combat against hostile armored vehicles. Two types of "tank chaser" have been developed, one in England and one in Italy, whose exclusive mission it is to chase hostile tanks. In England, maneuvers have been held in which the combat "tank against tank" has been practiced, although not with the most satisfactory results. The former wheeled and track tank (K.H. 50.60) of Czechoslovakia appears to have been replaced by a track vehicle. Since, however, other countries are still experimenting with the wheeled and track tank, we are not justified in coming to the conclusion that experiments with this type of vehicle have been given up.

It is apparent that increasing importance is being given to the medium tank. Table I shows eight types of medium tank, newly developed or constructed in 1937 and being designated as such by the various foreign powers. It is obvious that an effort is being made to equip tank units with heavy weapons which are suitable and capable for employment against antitank weapons and artillery in support of the advance of light tanks. A further task of these medium tanks seems to be to provide a striking reserve for use against hostile tanks.

From previous information and in previous years, special purpose tanks were known to have existed. Especially in Italy have great advances been made. The Italians have converted

existing light tanks into flame and smoke throwers and bridge layers. These developments point to probable further developments in the construction of special purpose tanks. In combat it is especially important that the advance of the tank units themselves be facilitated. Let us suppose that to assist these tank units forward, engineers (motorized) must be employed to prepare the way or to assist in the advance of these tanks. At present these engineers must be brought forward and unloaded from their vehicles, a process which in itself costs considerable time, before they can begin their work, such as the removal of mines. In order to protect engineers who might be called upon to do this work under hostile fire and also in order to save time it is reasonable to suppose that tanks capable in themselves and, without the dismounting of crews, of removing these mine fields, will be developed. In England, France, and Russia we know that swimming tanks are in existence. Such types will become of increasing importance to armored units which are to be employed independently against a hostile flank or rear. Of interest are the various attempts to make all tanks capable of swimming as well as the attempt to provide tank units with bridge material which will be carried as a part of their equipment, in order to permit the rapid crossing of streams and watercourses.

Also is the wire cutting tank of Poland of interest (see C. & G.S.S. Quarterly, March, 1938, page 248).

From an organization point of view, it is noteworthy that in England a school of armored vehicles was established and that continually new tank signal platoons are being organized. The increasing number of tank units requires that officers of other weapons be transferred to the tank arm and it is interesting to note that those transferred are presumably the best. In France, for instance, a great number of infantry officers have been directed to attend a six months' tank school. Based upon their work at this school depends their transfer.

Standing in the foreground in all maneuvers and in all exercises is the cooperation between tanks and infantry. Although different points of view exist in different countries concerning the employment of tanks there is unity in the conception that the tank is the best and most effective means to assist the advance of the infantry against hostile machine guns. No longer is the question raised whether the tank shall move at the same speed with and accompany the infantry. The tank must utilize

its own speed and its own fire-power to the maximum, because in this manner it will help the infantry most effectively. The tank must utilize to the fullest its speed and maneuverability so long as hostile antitank weapons threaten. Once these antitank weapons are eliminated then can the tank without danger to itself dedicate its efforts to the immediate support of the infantry, be this immediate support a moving back of part of the tanks or be the task assigned to elements of the tank force still in the rear. It is then that the infantry can advance rapidly for all hostile machine-gun nests can be overrun and destroyed by these direct supporting tanks.

Of decisive importance for this cooperation is communication. Means of communication are as follows: radio, light signals, flags, tracer bullets, and, recently, rifle grenades equipped with various colored smoke. This last-named means has been successfully tested.

Against an enemy in a strong defensive position it is clear that tanks must be fully supported. In addition to artillery and the heavy weapons of infantry which fire against antitank weapons and especially shall fire against known antitank weapons and shall reduce or eliminate enfilade fire effects, smoke must be employed and the air arm must support the tank attack.

During all maneuvers in 1937, tanks were employed and especial emphasis was laid upon the employment of means during combat to assist tanks in negotiating hindrances, watercourses, and streams.

During training, target practice stands in the foreground. That tanks, while at a standstill offer an excellent platform from which to shoot is obvious, but that the crew be able to shoot well while the tank is in motion is of great importance. War experience demonstrated that good results were obtained from a tank in motion. It has also been demonstrated that well-trained crews have achieved excellent results from fast-moving tanks. We should not underestimate this factor if we desire to evaluate properly the tank not only from the attacker's but from the defender's point of view.

Considerable matter has been written in the military publications of the world about the latest war experiences. Although these writings are from the pens of presumable experts, and although seemingly important conclusions have been drawn from the operations of tanks in Abyssinia, Spain, and China, these writings and these conclusions should be taken with a

large grain of salt. If we calculate the number of tanks in foreign armies we reach a number of at least 15,000. Moreover, we find numerous voices of so-called experts who hold that the tank against the modern defense means is valueless. These critics, however, overlook the fact that tanks, for instance in Spain, have been employed under peculiar circumstances and in very small numbers, and by no means in accordance with modern conceptions of tank employment. They overlook the fact that modern armies have armored units organized into tank brigades and tank divisions, and, above all, they forget that the tank was of decisive importance in the World War.

Every type of terrain is not suitable for tank employment — they should be employed only there where they can have full effect. During the World War, cavalry employed in suitable terrain proved effective. Employed in unsuitable terrain and where it was unable to be developed it proved ineffective. And so it is with tanks. Decisive battles with large infantry units have always been fought where the terrain permitted movement and mobile battle. In such terrain, tanks should be effective.

Tanks are (and 1937 in retrospect especially points to this) the sharpest attack weapon on earth.

Armored Reconnaissance Cars

Armored reconnaissance cars are not everywhere used solely for reconnaissance missions — under certain circumstances and in some armies they are employed to assist in carrying through the attack — although they are in the main restricted to roads and negotiable trails. In so far as these vehicles are employed primarily for reconnaissance, in general they are organized into reconnaissance units, in some instances they are assigned to cavalry, in others to tank units.

From Table II we note the great number of armored reconnaissance cars which have been introduced or developed in foreign armies during 1937. It will be noted that these vehicles have a certain terrain mobility, can move around road blocks, and can continue their movement in favorable terrain. It will be further noted that the trend is away from the half-track vehicle and to the six-wheeled vehicle, the primary reason being that the six-wheeled vehicle has greater speed.

It is interesting to see from the table that of the sixteen cars enumerated, ten are equipped with armor-piercing weapons (cannon or heavy machine guns, that is, machine guns of 50

caliber or greater). We thus see that they are capable of combating not only hostile armored vehicles but also antitank weapons provided with an armored shield.

Several kinds appear to be constructed for special services (colonial or police), since they are only partly armored (open above). In general, the speed is around 40 miles per hour. Everywhere the new types are replacing the old and obsolete or obsolescent.

Of interest is the English attempt to equip armored reconnaissance cars with smoke bomb throwers. The primary object of this weapon is to blind antitank weapons when the vehicle itself suddenly and surprisingly runs into these at close range, this blinding permitting the reconnaissance car to withdraw itself from the sight and effectiveness of the antitank gun.

In Italy we find an armored-car reconnaissance regiment, in England an especial armored-car reconnaissance training troop. From various reports it is evident that great stress is laid upon the training of the leaders of these reconnaissance vehicles. For instance, in Italy the period of service for the armored-car troops is longer than that of infantry and artillery.

From the developments of 1937 it is perfectly clear that the tendency today in all armies is to employ the six-wheeled vehicle for armored reconnaissance.

Antitank Defense

Speaking primarily of Europe, there is no question but that the increase in the German Army and concurrently an increase in its tank power have produced in the other nations a desire and demand to increase as rapidly and effectively as possible their means of antitank defense.

Table III indicates in general the development of antitank weapons. It will be noted that there are ten different kinds of antitank guns and nine different kinds of heavy (50 caliber or above) machine guns.

Since we cannot reckon with the employment of tanks in every theater, several countries have constructed this antitank weapon so that it can be employed not only against tanks but as an antiaircraft weapon. Whether such a solution — that is a weapon which is suitable both for antiaircraft and antitank defense — will be satisfactory, is doubtful. Antiaircraft weapons require a special type of base; such a weapon is difficult to camouflage employed as an antitank gun. It is of the utmost impor-

tance that antitank weapons be thoroughly camouflaged and concealed in order that their position not be disclosed too early to an enemy. Attempts have been made to construct the antitank gun into a sort of hybrid artillery piece, that is, the weapon was provided with two tubes, the one, for instance, of 37 or 47-mm, the other of 75-mm caliber. Two types of ammunition were also employed, the antitank projectile for the 37 or 47-mm tube, and the shrapnel or high explosive shell for the 75-mm tube.

In England we find the antitank rifle, one of which is provided to each platoon, making 144 of these weapons in the division. In every country the question of whether a horse or motor-drawn antitank gun is sufficient in all situations is being seriously considered. Should a marching column be struck by armored units (and such situations must be considered as possible always) a certain period of time must elapse until the horse-drawn or motorized antitank weapons of that column are all ready to fire. Likewise the question, if and to what extent the combat outposts should be provided with antitank guns, has not been satisfactorily solved. Without question, the combat outposts should not be left without suitable antitank weapons. On the other hand, the withdrawal of horse-drawn or motor-drawn antitank guns from an outpost position and over terrain in which little cover is available would be most difficult. Therefore, the antitank rifle increases in importance; in a few seconds it is ready to fire; no special cover or camouflage means are necessary. According to the data which we have, it appears that the English antitank rifle has solved some of the most perplexing problems, especially those of penetrative power. At 450 meters this weapon penetrates the armor of all present-day tank types. The weight of this rifle is unknown, and, as we all know, weight plays a large role for the man who has to carry it.

From an organizational point of view, it is worthy of note that every country is providing the infantry with antitank weapons and that in addition thereto the higher commander is being given a reserve of these weapons, which, as a rule, will be employed when a tank attack is recognized as pending. Most of the antitank units are motorized.

In addition to the development of the antitank gun itself, special stress is being laid upon the utilization of terrain. Emphasis is being placed on the work of the engineers in antitank defense. And, among other things, opinions are being expressed

that fortresses with their moats and trenches and other means of obstacles are regaining some of their lost importance in this day of modern tank units.

Especially in England and America has the question of the employment of mines received considerable attention. Attempts have been made to determine the number of mines required to lay an effective obstacle. According to a maneuver report from England, three engineer companies with 3,300 mines transported by truck laid a mine field 11 kilometers long and 4 kilometers deep. Three types of mine fields are considered suitable:

1. To provide full protection on a front of 900 meters employing 1500 mines, these mines laid in groups of 4 with 1.35 meters between mines and with 3.5 meters between groups of mines.

2. Full protection of a front of 900 meters employing 1000 mines, this protection being provided by two checkerboard rows with 1.8 meters between mines.

3. Protecting a front 900 meters wide employing 700 mines, the mines laid in two checkerboard rows with intervals between mines of 2.7 meters.

It must always be borne in mind that the laying of mine fields demands much time and man-power and that these mine fields must not be a detriment to our own operations. In other words, mine fields should not be laid in terrain over which the present defender intends to launch a counteroffensive.

In the so-called latest war experiences, much has been written about the value of antitank defenses. For instance, we have the gasoline flasks employed in Spain. Facts prove that success has been achieved by such means, but what holds true with the hand grenade holds true with the benzine flask. During the war, troops often succeeded in hurling hand grenades against advancing tanks and in disabling those tanks. But we must remember that the tanks which were so disabled during the war were operating alone, there were no effective following accompanying weapons and they moved rather slowly. That situation, however, has been changed. The speed of tanks has increased, accompanying weapons have been provided and at least according to the most advanced doctrine, tanks today attack in a series of waves. Therefore, today success will be obtained with thrown benzine flasks only when the fire results on the inside of the tank, that is when the flask is thrown at the right time and flames burst at the suitable place. It is not thought that the benzine

flask can be looked upon as the newest and most suitable anti-tank defense means and under normal battle conditions the employment of this type of defense will hardly be possible.

Motorized and Mechanized Units

The tremendous amount of the new types of material and the fullness of the information about new organizations permit a discussion of only a few of the most important questions. Everything is in a state of progress and daily new developments can be expected.

Motorization and mechanization are moving rapidly forward. We know that in England, France, and Russia there are armored brigades and armored divisions whose primary component consists of tanks, and that in addition to these tanks will be found in these units motorized or mechanized infantry, motorized artillery, and the other arms (all motorized) which properly belong to such units. In France we find the mechanized division consisting of two regiments of light armored vehicles, a regiment of Dragons Portée, two motorized artillery battalions, engineers, etc.; in England mechanized units reorganized from cavalry; and in Russia an experimental mechanized brigade is being tested. We know that mechanized divisions exist in Russia, in France, and probably in England; in Bulgaria is to be found a light division, probably fully motorized; in Italy rapid divisions; and in Japan light infantry divisions, to which mechanized regiments with tanks and armored reconnaissance cars belong. Belgium has a motorized cavalry corps; even in Switzerland are to be found "light troops" to which motorized machine guns and engineers belong. Enumerated above is information known or confirmed in 1937. From this information it will be observed that in foreign armies large armored mechanized and motorized units exist, rapid moving elements, which, employed at the beginning of a war, may have decisive influence on the course of events of the first few weeks. It therefore behooves the defender or the opponent of any power so equipped to provide all means possible to combat the effectiveness of these modern troop units.

Some proof of the importance attached to mechanization and motorization are indicated below:

1. The tremendous equipment of the English Army with mechanized and motorized units.

2. The establishment in Moscow of an especial military academy for motorization and mechanization.

3. The establishment in England of a technical army school and a motor school.

4. The increase in the length of service in many armies for those troops in motorized and mechanized units, for instance in Belgium five years' service for those belonging to the motorized cavalry.

5. Better promotion in some countries as well as better pay and better living conditions, these last having the primary object of producing the maximum mental and physical capacities of the troops concerned.

Maneuvers of 1937 found in all parts of the world the employment of these motorized and mechanized units.

Motorization and mechanization of the various arms is only briefly considered. In the artillery not only are wheeled vehicles and track vehicles employed for the drawing of the guns themselves but the increase in the use of six-wheeled vehicles not only as motive power for the guns but as transportation for the crews and ammunition is indicative of today's trend. Self-propelled mounts are conspicuous by their very small number. The reorganization of cavalry into mechanized units goes on apace. The horse is vanishing by degrees; yet it is clear that in every army at least a small portion of the horse cavalry will continue to exist.

The new types of motor vehicles are interesting. Especially in the cavalry do we find lightly armored reconnaissance trucks. All kinds of vehicles are being used for motorization and mechanization; in some instances are to be found vehicles of special construction; but in most instances the ordinary commercial type of vehicle is being utilized or its development is being influenced by possible future military needs. Armored motorcycles are to be found in Italy, America, and Sweden and the effort is being made to employ the motorcycle in many capacities, not only for messenger service but for signal communications, for engineers, and for supply. Numerous attempts with varying success have been made to provide tires which would not be affected by direct hits and to build floating or swimming motor vehicles. In France, especial efforts are being made to develop further the motor which will burn wood gas.

The preceding comments are but a brief consideration of the development in army motorization and mechanization in

the year 1937. No attempt has been made to cover every development, but an indication of those most important developments and their possibilities have been discussed. This discussion may serve to focus the attention of the reader more strongly on modern development in modern armies.

1937 DEVELOPMENTS

TABLE I —TANKS

LIGHT TANKS

Country	*Kind*	*Weight (Tons)*	*Armament*	*Crew*	*Armor*	*Speed (M.P.H.)*	*Notes*
Czecho-Slovakia	AH 43	6 to 8	1 cannon 2 machine guns	3 to 4	10-mm	27	
England	Vickers Carden Lloyd M36	3.8	1 machine gun	2	4 to 9-mm	30	
England	Mark IV	4.2	1 machine gun			36	For reconnaissance no revolving turret.
England	Mark V	4.8	1 machine gun			40	For reconnaissance with revolving turret.
England	Destroyer tank		1 cannon				Tank chaser.
Belgium		3.8	1 machine gun	2	4.9-mm	30	Revamped Vickers Carden Lloyd 34.
Italy	Fiat Ansaldo M 36	4.8	1 cannon			20	Tank chaser.
Sweden	Landsverk	7	1 heavy machine gun 1 machine gun	3	6 to 13-mm	30	
U.S.A.	M 1	5.4	3 machine guns		9.7-mm		
U.S.A.	M 2	7	1 heavy machine gun 2 machine guns			50	
U.S.A.	Cavalry combat car		Same as above			50	Experimental.

MEDIUM TANKS

France	D 1	(13 to 15) 11	1 cannon 2 machine guns	3	10 to 30-mm	11	
France	St. Chamond	25 to 30	2 cannons 2 machine guns		35-mm	17	
Italy		8	1 cannon Several machine guns	3		18	Weight to be increased to 12 tons.
Sweden	Landsverk	11	1 cannon 2 machine guns	4	8 to 24-mm	22	
U.S.A.	Cavalry combat car	8 to 9	1 heavy machine gun 3 machine guns			35	
U.S.A.	T 3 E 2	11	1 cannon 4 machine guns	5	22-mm	Wheels 60 Track 40	Experimental.
U.S.A.		10 to 11	1 heavy machine gun 2 machine guns				Experimental.
U.S.A.	Tze 2	11	1 cannon 3 machine guns	5	22-mm	37	

SPECIAL PURPOSE TANKS

Italy	Flame thrower	3.2				21	Also with trailer.
Italy	Smoke tank					21	Also with trailer.
Italy	Bridge layer					21	

NOTE: By heavy machine gun is meant 50-caliber or its equivalent, up to 25-mm.

TABLE II —ARMORED RECONNAISSANCE VEHICLES (ARMORED TRUCKS)

Country	*Kind*	*Weight (Tons)*	*Armament*	*Crew*	*Armor*	*Speed (M.P.H.)*	*Notes*
Italy	Fiat M 34	7	1 cannon 2 machine guns	4 to 5	8 to 13-mm	45	
Italy	Swimmer	9	4 machine guns		7 to 14-mm	21	Swimming speed 5½ miles per hour.
England	Morris Vickers, 6 wheel	4.25	1 machine gun	3	7-mm	40	
England	Straussler II, 4 wheel	4	2 to 3 machine guns	5		55	
France	Laffli, 6 wheel		Several machine guns				No revolving turret.
Poland	Ursus	5	1 cannon 2 machine guns	4	12-mm	36	
Czecho-Slovakia	Skoda PA 4	8.7	1 heavy machine gun 2 machine guns	5	14-mm	36	
Belgium	Carden-Lloyd		1 machine gun			20	
Sweden	Landsverk 182, 6 wheel	5.6	1 heavy machine gun 2 machine guns	4 to 5	7-mm	40	Also in Holland.
Sweden	Landsverk 185, 6 wheel	4.0	1 heavy machine gun 1 machine gun	5	6-mm	36	Also in Switzerland.
Sweden	"ft. 29"	7.5	1 cannon 2 machine guns		6-mm	36	Experimental.

Sweden	Landsverk 190	4.0	1 cannon or heavy machine gun & 2 machine guns	5 to 6	6-mm	36	Open top.
Holland	Van Dorn, 6 wheel	5.5	1 heavy machine gun & 2 to 3 machine guns		5 to 8-mm		
U.S.A.	M 1, 6 wheel		1 heavy machine gun 2 machine guns				
U.S.A.	Cavalry, reconnaissance car		2 to 3 machine guns				For protection of the march.
Austria	Austro-Daimler, 8 wheeled	12	1 heavy machine gun 3 machine guns	7	18-mm	48 to 50	

NOTE: By heavy machine gun is meant 50-caliber or its equivalent up to 25-mm.

TABLE III —ANTITANK WEAPONS

Country	*Kind*	*Caliber*	*Muzzle Velocity (Meters per Second)*	*Range*	*Penetrative Power*	*Notes*
England	L 50	40-mm	792	6800	15-mm at 1200 meters	Also antiaircraft.
England	Vickers Armstrong	40-mm			15-mm at 1000 meters	Also antiaircraft.
France	Schneider	37 to 48-mm				
Sweden		37-mm	800		15-mm at 1200 meters 30-mm at 400 meters	
Sweden	Bofors L/45	37-mm	800	6000		Also in Switzerland.
Holland	Böhler	47-mm		7500		
Italy	Skotti	47-mm	567		30 to 37-mm at 700 meters	
Denmark	Madsen	37-mm	900			
U.S.A.	Habden	37-mm	381	4000		
Austria	M 35	47-mm	630		44-mm at 500 meters	

HEAVY MACHINE GUNS

Czecho-Slovakia	M 35	20-mm		5000		Also antiaircraft.
France	Hotchkiss	25-mm	875	8000		
England	Vickers Armstrong	12.7-mm	914	6400	20-mm at 180 meters	
England	Antitank rifle	12.0-mm			At 450 meters all types of armor	
Italy	Breda	20-mm	840	5500		Also antiaircraft.
Italy	Skotti	20-mm	850	5000		
Denmark	Madsen	20-mm				Also in Argentina.
Switzerland	Oerlikon	20-mm	850	5000	40-mm at 300 meters 30-mm at 500 meters 25-mm at 700 meters 20-mm at 1000 meters	
U.S.A.		13.2-mm		9000		

THE MOTORIZED DIVISION

[Condensed from an article by Lieutenant Colonel Trabucchi and Lieutenant Colonel Quercia, appearing in *Rivista di Fanteria*, October-November 1937.]

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

The Italian tactical doctrine prescribes rapid operations, and requires means to insure quick concentrations of large bodies of troops.

Motor is assuming an increasing importance in war. Mass transport by motor is not new; it was used during the World War, as for example at Verdun and at Goritzia; however, the scale of development of modern transportation means is something new. Strategically, motor transportation has shown itself to be more flexible than railway transportation due to the more extended road net; it is also less vulnerable, from the nature of road construction. Tactically, motor transport is more elastic, more readily available and is capable of carrying troops and armament almost up to the point of action.

Technical improvements have made available vehicles suitable to any requirement and adaptable to any need, from the gigantic truck and trailer to the small, flexible passenger car.

The present mechanical perfection of the motor should be accompanied by a correspondingly high state of efficiency of the employment of the means of transportation. This means organization of the road system (selection of routes, traffic control posts, entrucking and detrucking points); rapid refueling, and perfect understanding and control of movement (march formations, speed, time required).

There is a tendency today toward the use of motorized units, that is to say, units permanently possessing not only their own means of transportation and so organized as to facilitate their employment in mass at the end of the movement, but also units definitely accustomed to such movements.

The Italian motorized division was organized on 15 July 1935. It is still in the experimental stages and lacks long experience from which to draw conclusions. The remarks that follow are merely a contribution to a question very much alive, which is engaging the attention of technical experts and students of the problems of mass transportation and employment of troops in battle.

Organization of the Motorized Division and Its Security on the March

I. — *Provisions and preparations to facilitate movement.*— The normal function of the motorized division will be the urgent intervention to determine unstable situations, where promptness of action will be more important than power. The primary characteristic of the motorized division will be constant readiness for prompt and rapid movement.

This prompt intervention makes it necessary that the division be always in readiness. This requires preliminary organization, instruction of officers in the technique of rapid mass transportation; training of troops to travel in truck columns, speed in entrucking, detrucking and rapid marches; attention to every detail that can be arranged beforehand, so as to avoid improvisation and confusion at the last moment. Points to be especially noted are:

(1) Use of motor transport units.
(2) Refueling.
(3) Formation of the division in echelons, of first and second priority.
(4) Tabulation and logistic data.

II. — *Organization of the movement from the concentration zone to the point of action.* — The fighting nucleus of the Italian motorized division consists of four rifle battalions transported by motor trucks. Hence, the arms and the means of transport are not identical, as is the case in mechanized units; the transportation part is distinct from the tactical phase. The elements to be considered in the movement are: (a) Roads, (b) Vehicles and (c) Units to be transported.

a. Roads.—The transport and communication officers of the army, corps, motorized divisions, and, sometimes GHQ, are concerned in the management of roads. The division transport and communication officers, having direct charge of all movements within the division zones, are concerned in the movements of the motorized divisions; they may indicate the route to be followed, or when, as is more frequently the case, this assignment is made by the supreme command; they assist by eliminating all causes of delay, detouring other traffic, if possible, by other roads.

The division commander makes all arrangements between the troops and the motor transport units. In particular, he

must designate entrucking, detrucking and parking points; routes, insofar as they have not been fixed by higher authority; formation of columns, order of march of units and the times when the movements are to begin and to end.

The commander of the motor transport units of the motorized division is the technical adviser of the division commander in matters of motor transportation, and is the executive through whom the division commander's orders as to transport are given. He regulates the distribution of motor units, according to the requirements fixed by the division commander; regulates the approach to entrucking points with reference to the location of units, fixes the distances between the elements of the echelons; provides security in parking areas, and determines the methods of supply of fuel and lubricants.

(1) *Entrucking point.*—The entrucking point should be located on a hard surface road twenty feet wide, if possible, and along stretches long enough to permit entrucking a battalion at a time. Loading should proceed in an orderly manner and with rapidity. Antiaircraft defense should be in position, or action to prevent air observation or attack, the trucks should be concealed from air observation and precautions must be taken to prevent the enemy from knowing that the division is moving.

(2) *Routes of march.*—As a rule, the routes as already pointed out, are designated by higher authority. If possible several routes should be assigned to a division in order to minimize accidents and air attacks. Rigid road discipline should be enforced, so as to avoid excessive elongation, jams and halts. Advance motorcycle detachments insure the uninterrupted movement of the column, by removing obstacles or dealing energetically with anything that might delay the movement. Radio communication is sometimes necessary.

(3) *Formation of the march column.*—The formation of the column is determined by the order in which the various elements are to be used.

Engineer detachments should march at the head of the column, for removal of obstructions, building of bridges or repair of structures destroyed by the enemy.

The commander should be as far forward as possible, and orders should be issued with the desirable rapidity. Division headquarters will be split into two echelons: the forward echelon under the division commander, and the rear echelon under the Chief of Staff. Orders will often take the form of directives,

subordinate commanders supplementing them and providing the means for carrying out the intentions of the commander.

The motorized division has an astonishing variety of motor vehicles, such as automobiles, motorcycles and fighting vehicles and, moreover, there is a great variety of types in each class, such as passenger cars (large and small), busses, trucks for men and for matériel and special trucks of every kind — repair trucks, refrigerator trucks, ambulances, electric power trucks, motorcycles, tricycles, tractors, tanks. It is, therefore, necessary in case of reinforcement of any unit to keep in mind the organic type of its vehicles, so as to maintain homogeneity, and in planning a march, consideration must be given to the varying rates of speed of the various types, their varying fuel consumption and the varying capacity of the gasoline tanks, which determines their radius of action.

The time allotted for entrucking and detrucking can be greatly reduced due to the fact that the troops of a motorized division are thoroughly trained in these operations.

(4) *Selection of detrucking point.*—This is the most delicate decision that the commander has to make. The point selected must be as near as possible to the place where action is expected, but at the same time it must not be exposed to the enemy's fire. The selection depends upon the three following elements:

(a) Tactical situation.
(b) Road net.
(c) Technical requirements for detrucking.

The detrucking point should be out of range of the enemy's light artillery, or never less than 5,500 yards from the zone where it may be expected that the enemy's motorized forces may come into action. Detrucking points should be screened from the enemy's ground observation, and, hence, advantage should be taken of all available natural cover.

Motorized columns at a halt are a most vulnerable target for the enemy's air force; therefore, it is desirable to detruck at night, or, at least, in the early morning, when observation is poor, whenever the tactical situation permits. If the situation compels arrival in daylight, columns should be broken up into small fractions, the detrucking zones should be large and all means of antiaircraft defense, except pursuit aviation, should be used.

Night detrucking requires preliminary studies and dispositions on the ground, and the detrucking points selected on axial

highways of the corps or army, in order to avoid interference with the free flow of traffic or supply.

III. — *Security on the march.*—The normal mission of the division requires independent action, and this means limited security. Moreover, the personnel of the division while on the road is not in a position, even to operate, much less to protect themselves. Danger may threaten the division on the march, either from the air as already pointed out, or from the ground.

A movement towards the enemy may be undertaken under three conditions:

(1) Under the protection of infantry units already in position.
(2) Protected by light troops.
(3) Without protection.

The first case is evidently the most favorable and the movement may be made almost as in time of peace and can be very rapid.

In the second case reconnaissance and protection will be necessary, because while there will be no danger of unexpected contact with large hostile forces, yet there is a possibility of enemy infiltrations, especially by light troops. However, the necessary security measures will not be particularly burdensome, nor will detachments have to be sent to a great distance.

The third case is evidently the most difficult and dangerous. The division commander must not only move rapidly, gain contact with the enemy as soon as possible, but he must also take steps to protect himself against surprise attacks while the division is in column formation.

Ground and air reconnaissance must work quickly and smoothly and the enemy information (location, organization, activities) must be extremely accurate since once a decision has been made, it is practically impossible for the motorized division to change its dispositions while using its motor transport.

Reconnaissance parties consisting of motorcycles and armored cars should be directed along specific lines and upon specific missions. In many cases it will be desirable to reinforce these parties with tanks, as a swift-moving combat element, for use when combat becomes necessary to secure information or to advance. Reconnaissance should determine where the enemy is, his organization and strength, and within reasonable limits, what his intentions are.

The motorized division having as its mission a rapid advance and seizure of a position ahead of the enemy or of exploiting a success, will habitually have an exposed flank or flanks. Flanking detachments, detached from the advance guard or from the main body, should travel by parallel roads if available, or if there are no such roads, they should occupy suitable points such as crossroads, bridges and fords, and hold them until the main body has passed. Then they fall in at the tail of the column, and regain their proper position at the end of the march.

Bearing in mind that the time required for a motorized division to detruck and deploy is certainly greater than for the deployment of an ordinary division, the advance guard should be pushed as far forward as possible, without running the risk of being overpowered before the main body can come up in support. The composition of the advance guard will be determined by the situation, terrain and mission of the division. It will, in general, be composed of motorcycles, tanks and rifle units reinforced by machine guns. It moves habitually by bounds, motorized units occupying successive defensive lines — streams, crests, road junctions, defiles. These units move when overtaken by the main body, and regain their lead by their greater speed, so that the main body proceeds without interruption.

Employment of a Motorized Division in Action

The motorized division is organized for the accomplishment of certain tasks, which require, in particular, rapidity of movement and promptness of employment, as follows:

(1) Prompt occupation of important positions, so as to compel the enemy to make an attack to gain them (offensive-defensive mission).

(2) Cooperation with the cavalry division; in this cooperation, which demands the combined use of all the powers of both units, the motorized division must provide:

> (a) For opening the roads to the cavalry division, breaking down, by its greater power, resistance which is too much for the cavalry division, or whose reduction would cause such serious loss that the cavalry division would no longer be capable of carrying out its normal rapid movements.

(b) For relieving the cavalry division in the occupation of a position which it has taken, thus permitting the cavalry to resume its duties of reconnaissance and general advance guard (defensive mission).

(c) For supporting the cavalry division and protecting its retirement, when the cavalry requires time to reorganize, and its losses are such as to make it difficult to maneuver independently (defensive mission).

(3) *In army reserve.*—In this case the motorized division is especially adapted

(a) For prompt and rapid exploitation of success (offensive mission).

(b) For an emergency defense (defensive mission).

It will be noted that the motorized division has both offensive and defensive missions. Offensive missions, the exploitation of a success due to the collapse of the enemy's forces excepted, are particularly difficult due to the very limited penetrating power of the division and also because after the troops are unloaded, guards must be furnished for all the trucks.

The defensive missions are facilitated by the number of automatic arms, possibility of rapid resupply of ammunition and matériel by motor transport and facility of coordinating frontal fire with maneuver against a flank.

There is, therefore, a fundamental difference between the two types of mission.

The essence of the maneuver of a motorized division consists in immobilizing the enemy frontally, and then striking him violently in flank or rear. The best opportunities will be against weak spots, gaps, or open spaces in the enemy's dispositions. All battalions should be employed in line, since the idea is not to launch a patient, systematic attack, but to break violently through a defensive system leaving the enemy no time for reorganization. The action of the motorized division is characterized by rapidity and violence, where the importance of time factor is exceptionally great, hence, the artillery must make a rapid preparation to support the action of the various units of the division.

In the defense, the division will be sent in emergencies when there is urgent need to close a gap. The most sensitive points will be occupied by company strong points with their organic machine guns, while the tank battalion will be held back for maneuver.

CONCLUSIONS

The fundamental characteristics of the *motorized division* may be summed up as follows:

(1) It is a unit which is capable of long and rapid movements.

(2) It is so long and heavy that it is very difficult to change its direction when once launched along a certain line.

(3) It is suitable for use in situations which require a swift and decisive blow, but less so for prolonged efforts which call for successive reinforcements.

(4) It is dependent upon wheeled transport and, therefore, can be used only in country with an extensive road net.

(5) It is extremely vulnerable while in movement.

The great *advantage* of the motorized division is that it possesses, organically, everything necessary to enable it to intervene, at the final detrucking point, with all its elements relatively fresh.

Its disadvantages are:

(1) Its unwieldiness due to the great number of vehicles required for its transportation.

(2) Slight tactical mobility due to the fact that most of its vehicles are confined to roads.

THE REASONS FOR THE UNUSUAL EMPLOYMENT OF AVIATION IN THE SPANISH WAR

["La guerre d'Espagne. La combinaison des forces de l'air avec les forces navales et avec l'armée de terre." By General Armengaud. Condensed from *Revue Militaire Générale*, March 1938.]

BY MAJOR R.G. TINDALL, Infantry

Aviation in the Spanish War has found its principal employment on the battlefield itself, assisting the advance of the infantry, much to the surprise of many military students. The reasons for the employment of aviation are covered in an article by General Armengaud of the French Air Force. This officer, an undoubted authority, recently returned from a visit to the Government forces. His article was written after the fighting around Teruel but prior to the launching of the rebel offensive near Belchite which carried them to the sea.

The reason why aviation has intervened to such an extent on the battlefield, according to General Armengaud, is not because that normally is the best employment for aviation, but because of the peculiar Spanish conditions, particularly the extreme shortage of artillery and the deficiency of infantry-artillery teamwork. There is little artillery but many automatic weapons and consequently, even though comparatively small forces are spread out over a huge front, it is quite difficult to capture positions by frontal assault. In the absence of artillery, the aviation has been called upon to supplement the former.

General Armengaud believes that insofar as the handling of aviation is concerned, the Spanish Government has made a grave miscalculation, one which may well prove fatal.

The Government miscalculation has been the neglect to combine the action of their air force and their naval force. They have been led to combine closely the action of their air and ground troops but have missed a vital part of the problem.

Neither belligerent has the means necessary to wage a long war; much material must come from abroad. Therefore, that side which gains and keeps the mastery of the seas will have a huge advantage, one which in the end may well prove decisive if a real victory cannot be gained by ground forces. Franco appears to have a naval superiority.

This superiority is not a result of any real inferiority of the Government ships and crews, but of the situation in regard to naval bases. The Insurgent possession of the islands of Majorca and Ibiza renders the air defense situation of the Government very grave.

General Armengaud insists that there is only one solution for the Government if neutral powers do not intervene to end the air bombardment of open cities, and that is an air-naval offensive against the Balearic Isles. He fears, however, that the hour for this is already too late. His conclusion is that, because of the lack of an organization coordinating air, ground and navy, the Spanish Government faces a difficult situation.

The threat of Insurgent aviation, based on Majorca, obliges the Government to defend 500 miles of coast on which are the large centers of population, the most important factories of war material, the ports and the naval bases. Thus many planes and much antiaircraft artillery must be kept here to defend sensitive points.

One of these, for example, he says, is defended by 8 batteries of excellent antiaircraft cannon of 100-mm, firing 7,500 meters high and with a 14-kilometer range, 14 sections of projectors and an air squadron. He also points out the difficulty of defense of this coast line because there can be no adequate warning service. The situation would be much worse if Franco had more modern bombers based on Majorca; at the time the article was written the quality of this aviation was termed mediocre. General Armengaud says it consisted of two squadrons of Italian hydroplanes, and one of German hydroplanes of "ordinary" type, three squadrons of modern Savora trimotor bombers and a strong Fiat pursuit squadron.

If more powerful and modern aviation should launch attacks against the Spanish coast from Majorca, the situation would quickly become critical. The morale of the population, which already has been weakened by the length of the war and privations, would undergo a severe test. Passive defense would have the appearance of a defeat. Only an offensive against the Balearic Isles could save the situation, an offensive in which air forces would play a leading role.

General Armengaud, after giving his views, discusses the reasons why Government aviation has not intervened in the naval situation except feebly.

In the beginning the situation on land appeared critical and the Government forces, confident in their ground communications with France over the Pyrenees, concentrated their efforts on ground operations, neglecting naval forces and coperating hydroaviation and diving bombardment aviation.

On land the Insurgents faced militia almost without artillery and antiaircraft weapons. The Insurgent aviation participated in ground fighting and with the artillery brought about the early Insurgent victories. However, around Madrid the Government forces found shelters protecting them from aviation and artillery fire to some extent, friendly pursuit began to appear, and the result was stabilization.

In Spain the armies are equipped principally with automatic arms. The Government side has a slight tank superiority; the Insurgents more artillery. But relatively both sides are weak in tanks and artillery. For example, there is on the average only one battalion of artillery per large unit (division ?) in addition to a general reserve of artillery. Moreover this artillery

is principally composed of cannons of 75-mm and 105-mm. There is little heavy artillery.

Moreover, there are few trained officers on each side; the armies have to learn while they are fighting, and their training is still rudimentary. This is particularly true of tanks and artillery, and the liaison of arms leaves much to be desired.

Stories of correspondents about infantry alone capturing strong enemy positions abound; these should be taken with a grain of salt. Nearly all attacks against positions have failed, unless launched by night or unless the artillery preparation is completed by the attack of aviation. This is because of the relative shortage of artillery, and naturally has led to increased participation of aviation in ground operations.

The Insurgent organization of the ground along the front consists of a line of strong organized localities with intervals between them of as much as several kilometers at times. Many have been organized under the direction of German technicians and are similar to semi-permanent fortifications, with thick slabs of concrete. These are constituted by a combination of infantry works and accessory defenses, machine-gun casemates, artillery shelters, observation posts and command posts and communication trenches. In active sectors these works are joined by a continuous trench, feebly organized and held.

On the Government side the defensive organization is more linear on the first position; the localities are less solidly organized, but the accessory defenses and the trenches are more continuous, deeper and often doubled by rear positions.

The front is very extended; with its sinuosities it measures some 1,200 miles; it disperses the armies and makes difficult any easy play of general reserves, particularly since transverse roads are few and often dangerous. For the government the ground front is doubled by a sea front and the dispersion of air defense forces over such a huge area is obviously favorable to the intervention of air forces in ground operations.

Because of the lack of good infantry-artillery liaison and of heavy artillery to deal with hostile defenses, it is easy to understand why the attack cannot take hostile positions unless aviation completes the work of the artillery.

Thus aviation has become in this war a general reserve of artillery, particularly precious because of its great mobility. This mobility allows it to face a sudden hostile attack, and to rapidly prepare an offensive, for rapidity of assembly of forces is indis-

pensable to surprise, in view of the frequence of desertions on the Spanish fronts.

Thus for many reasons, in Spain aviation is the best element of offensive power in ground operations. Despite the losses which it has suffered in this manner, it is *above all employed like a fifth arm of the ground forces in the forefront of battle.*

However, ground offensives being rare, because of the consumption of munitions and matériel, aviation is employed in quiet moments for attacks against the hostile rear also.

The feeble distance which separates the ground front from the sea front makes it evident that aviation could easily by appropriate dispositions concentrate a large proportion of its forces on the sea front, at the same time being able to intervene in an extremely short time on the land front. Few examples show more eloquently the reversibility of air forces in accordance with orders which might be given by a single commander over the two theaters of operations.

With the Government forces it is a Higher War Council which has the supreme command. This is composed of the Premier, the Minister of National Defense, the Minister of Foreign Affairs, the Minister of Agriculture and the Chief of Staff of National Defense. The latter's ideas dominate.

The particular officer is also chief of staff of the army; thus when it comes to assigning air force units to sea and land fronts, this general is both judge and litigant. Furthermore, the War Council, although expecting a long war, believes that it will be the army which will determine victory, and considers that there is no great danger from the sea. This explains the conduct of war by the Government to date.

General Armengaud believes that in the existing situation the side with the best aviation will win. This, he says, is also the view of the Spanish Government. He notes that the High Command has refused to employ aviation in detail, but endeavors to use it in mass. This excellent principle is applied all the more rigorously because of the weakness of the forces with regard to the extent of the fronts, the difficult missions with which they are charged and the difficulty of obtaining matériel.

The Spanish Government aviation complies with the doctrine of Douhet insofar as the employment in mass and economy of force are concerned, but not with regard to intervention in the terrestrial battle. Aviation in Spain furnishes its principal effort on days of battle and economizes its strength as much as

possible at other times. However, General Armengaud remarks that attacks against the enemy rear are conducted and that under other conditions the action of independent air forces would have a much greater development and a much greater weight in the final result.

The Spanish Government has created a ground army as result of a remarkable effort, but it neglected the sea and lost the superiority which it possessed initially. It created bit by bit an air force remarkable for the quality of its matériel, the courage of its personnel and the ability of its leaders. But this force has not been sufficiently developed and in good time; it is too weak in comparison with its enemy and the extent of its front to bear the crushing burden which has fallen to it, because of the inferiority of naval units and the lack of ground artillery.

For General Armengaud the big lesson is the necessity of unity of command.

BOOK REVIEWS

JAPAN DEFIES THE WORLD

BY

JAMES A.B. SCHERER

272 pages . . . New York: The Bobbs-Merrill Company

Reviewed by "Volunteer"

Fascism ruled Japan for centuries before Mussolini invented the word. Fascism and democracy are as opposed as the poles.

The concealed Mussolini of Japan is General Jiro Minami, governor-general of Korea. You never see his name in the papers, for he shuns publicity, and governs by long-distance telephone.

When his messenger-boy, Prince Konoye, the premier, hurries down to the Emperor's seaside resort and gets an ordinance signed, it wields as much authority with an overawed populace as the tablets Moses brought down from Mount Sinai signed by Jehovah. Government schools have been teaching the people that their Emperor is "the incarnate God who governs the universe."

Japan, more than any other country, is dominated economically by private monopoly. Four big families not only own about half the national wealth, outside of the Emperor's, but control the political parties. Their main job is manufacturing munitions.

The common people of Japan opposed this programme. They turned it down at the polls by an overwhelming vote.

The facsists then took the bit between their teeth, seized the government and ran away with the war machine to China and war.

The real hero of modern Japan is General Jinzaburo Masaki, but his truly patriotic efforts have been futile.

The vast body of the Japanese people, pitifully poor, are ground under heel to finance campaigns of ambition and greed. Thousands of helpless farmer-lads are turned by rigid discipline into an army of highly trained gangsters, Minami's "private army."

The militarists are simply greedy for more power, the big families for more wealth. That's the whole cause of the "undeclared war." Nothing else. Anything else is camouflage, propaganda. Two groups of gluttons try to gobble up China. If they succeed, and a fascist Japan dominates China, Japan becomes a deadly menace to the world. Her militarists have long dreamed of world conquest.

The "undeclared war" could not have been waged except for military supplies from other countries. Japan got ready for war with outside aid and carried it on with that aid. An early embargo on exports to Japan might have stopped it. We could have impeded it by boycotting Japanese imports.

To thwart Japan's militarists would not only clear us of an uneasy conscience and protect us from future danger, but it would benefit the Japanese people.

Our thoughtlessness was all the more criminal because, while we helped Japan with all manner of munitions, China got none.

Three tyrants — Mussolini, Hitler, Minami — stand openly committed to attack democracy wherever they find it. Democracy is on trial as never before. Minami is doing his best to destroy the world's largest republic.

Optimism at any price is one of our own most dangerous vices. The perfect optimist fell off the top of the Empire State Building and cried as he dropped past the fortieth story, "I'm all right so far!"

STRONG MAN OF CHINA

(The Story of Chiang Kai-shek)

BY

ROBERT BERKOV

288 pages . . . Boston: Houghton Mifflin Company

Reviewed by "Volunteer"

This biography tells for the first time the complete story of the world's most mysterious Strong Man — it marshals facts which few in China know. It gives the background of the man who now holds the center of the Far Eastern stage, a background which explains the significance of the important events taking place in Asia today. To read it is to gain a clear insight into

the great drama now unfolding across the Pacific — a drama that is bound to have momentous consequences for the United States.

As Manager of the Shanghai Bureau of the United Press Association, the author secured at first hand the material for this unbiased and absorbingly interesting book.

CANADA THE PACIFIC AND WAR

BY

WILLIAM STRANGE

220 pages . . . New York: Thomas Nelson & Sons

Reviewed by "Volunteer"

In fifty years Japan has leapt from comparative obscurity to a position whence she can challenge the peace of the world. The possibilities that lie in the present Far Eastern disturbance are of more grave concern to Canadians than many may realize. This book has been written in an attempt to clarify the Canadian view of the Pacific in general, and to give "the intelligent Canadian . . . a background against which he can more intelligently comprehend the day-to-day events of the Far East as reported in his daily newspaper."

What are the Canadian commitments in the Far Eastern situation?

What are the Canadian interests in the Far East now threatened by the present conflict?

Why is the United States' navy now regarded as a "Pacific Fleet"?

What was the "Washington Conference"?

What is the Nine-Power Treaty?

How can Canada defend her long Pacific coast-line?

These are a few of the many questions dealt with in this straightforward and vigorous book, which is up-to-the-minute both as to content and timeliness.

DESTINY OF A REVOLUTION

BY

VICTOR SERGE

(*Translated from the French by Max Schachtman*)

287 pages . . . London: Jarrolds, Ltd.

Reviewed by "Volunteer"

The twentieth anniversary of the Russian Revolution is an appropriate time to survey objectively in retrospect the greatest social experiment in history. Victor Serge is a thoroughly competent analyst who once occupied a high Soviet position (member of the Executive Committee of the Communist International) and who, while an ardent Communist, is opposed to the actual application of Communism as instituted by the Soviet bureaucracy.

Part One (The Condition of Mind and Man) briefly discusses such important factors as the condition of the workers in the U.S.S.R. today — inequalities in the wage-scale, and the truth behind the rapidly growing Stakhanov movement. Part Two (The System) critically examines the U.S.S.R. as it actually functions. What is behind the Secret Service? Do Soviet citizens enjoy freedom of Press and opinion? Who are the men and women incarcerated in the penitentiaries and solitaries? What are their crimes? Is there an effective opposition movement? Part Three (The Political Evolution) traces the democratic character of the regime established by the Bolsheviks in 1917 under Lenin and Trotsky.

All these questions, and more, are answered by a man who actually lived the Revolution and was an active participant in the events he so vividly describes. At a hundred points this book confirms the testimony of *I Was a Soviet Worker*.

FIRST ACT IN CHINA

(The Story of the Sian Mutiny)

BY

JAMES M. BERTRAM

Illustrated . . . 284 pages . . . New York: The Viking Press

Reviewed by "Volunteer"

One day in December 1936, the world was mildly startled to read in its morning papers that the Chinese Generalissimo,

Chiang Kai-shek, had been abducted by one of his subordinates. Few people realized at the time that it was a turning-point in modern history, perhaps the Sarajevo of a new world war. Only one journalist got through to the remote town of Sian where Chiang was held captive. The Generalissimo was released, but the journalist stayed on and pieced together the amazing story of the abduction and its consequences. He tells it here as a personal account of his own adventure in reporting.

He tells how the news came to Peiping in the midst of a student demonstration; how he met with a mysterious Chinese who led him in disguise across North China, by devious ways, in the dead of winter; how they crossed the Yellow River on the ice, visited somnolent villages, talked to provincial officials, and came at last to the beleagured city of Sian. As a piece of political detective work, he ferreted out the truth about the intrigue and mutiny, and shows convincingly why Chiang was captured, how he came to be released, how China was at last united on a nationalist program, and why, as a direct result, Japan attacked in force the following summer. He gives a brilliant picture of the leaders of the nationalist cabal, especially of the "Young Marshal," Chang Hsueh-liang. He describes the peasant and soldier demonstrations that he witnessed, and reports on the strength and significance of the Red Army forces, which he observed in their encampments just beyond Sian. His analysis of the whole affair is a superb piece of reporting, which makes exciting and enlightening reading.

SOLDIERS OF DARKNESS

BY

THOMAS R. GOWENLOCK, WITH GUY MURCHIE, JR.

Illustrated . . . 286 pages . . . Garden City: Doubleday, Doran and Company

Reviewed by "Volunteer"

To the average individual the words "wartime espionage" bring pictures of glamorous demi-mondaines, mysterious gentlemen in evening dress, code books, invisible inks, and a firing squad at dawn. Few realize that the more vital work of the Intelligence Service during the war was done by an hitherto anonymous corps of picked men who worked out of the front-line trenches between the opposing lines. These men were literally

the eyes of the high command. Always at the price of peril and hardship, often at the price of death, they brought back their information, the belt and papers of an enemy encountered and killed, bits of a conversation overheard, a massing of troops noted in a communication. They worked in silence and darkness, and Death was seldom absent at their roll-call.

Colonel Gowenlock was one of these men. He has led patrols across the shadowy terrain of No Man's Land when the bright flare of a star-shell might be the last light they would ever see. And now he tells their story. Here is a book about a little-known side of espionage that is filled with adventure and excitement, and of man's high courage in the face of death.

TWO WARS AND MORE TO COME

BY

HERBERT L. MATTHEWS

318 pages . . . New York: Carrick and Evans

Reviewed by "Volunteer"

This is magnificent reporting. The thousands who have followed Mr. Matthews' dispatches from Spain in *The New York Times* will be in a measure prepared for the extraordinary quality of this book. That he found time to write it, amid the distractions of war, is in itself remarkable; much of it, in fact, was written under bombardment in Madrid.

Mr. Matthews has had a unique opportunity to observe war, for he has seen two wars in two years. He was with the Italians in Ethiopia, accompanying General Mariotti's flying column across the dreaded Danakil and entering Addis Ababa with Marshal Badoglio; and he was sent to Madrid during the Spanish Civil War, thus experiencing at first hand both sides in the Fascist bid for power, which many fear will not end with Ethiopia and Spain.

The author is not a correspondent content to write his dispatches at a safe distance from the front. Here in this book he retells in greater detail the much discussed and highly praised account of his perilous journey over the Arganda Bridge to prove to his own satisfaction that the Valencia Road had not been cut, thus isolating Madrid, as the Rebels claimed. This story

created a sensation when it appeared in the *Times*. No less breath-taking is Mr. Matthews' account of the Battle of Ende Gorge, where Mariotti's Askaris faced almost certain annihilation when trapped in a deep defile by the Ethiopians. And there is also a thrilling account of the Italian defeat by the Loyalists at Brihuega, which Mr. Matthews regards as one of the most important battles in modern times. And much inside information about the actors in the tragic dramas he has witnessed.

Here is a first hand narrative of war, as it is being fought today, by a man who has brilliantly revived the great tradition of war reporting. And throughout the book runs a grim warning to those of us who feel safe in our homes — of more to come.

THE DOLLAR

BY

JOHN DONALDSON

271 pages . . . New York: Oxford University Press

Reviewed by "Volunteer"

A study of money, through a consideration of the national and international aspects of the new dollar policy. A detailed tracing of the development of this policy, and a critique of pertinent monetary theories, are checked against an objective, statistical analysis of the actual economic results, including credit and prices and their effects upon the various features of the national economy. Reference is made to income and to business cycles. Foreign trade and gold and capital movements, the relationships with the currencies of other countries, and the international stabilization arrangement, receive special attention. A comprehensive and unbiased examination of the American monetary experiment, the book deals at the same time with basic concepts and becomes a fundamental treatment of the "new" national and international monetary system. As such it falls within the field of interest of specialists in money and foreign trade, and is important for students of general economics, bankers and business men, and readers who are concerned with American and world economic problems.

John Donaldson is well known in the United States and abroad as an authority on world economics and international

economic policy. He has served the government from time to time as an economic adviser, with the War Trade Board, Shipping Board, Department of State, American Delegation to the Washington Conference, Department of Commerce and other agencies, over the past twenty years. He has studied economic conditions in various foreign countries, has taught several colleges and universities, having been on the faculty of George Washington University, where he is Professor of Political Economy, since 1922, and is co-founder and Chairman of the Academy of World Economics.

CAESAR IN ABYSSINIA

BY

GEORGE STEER

411 pages . . . Maps . . . Boston: Little, Brown & Co.

Reviewed by "Volunteer"

Few people yet know just what the Italian-Ethiopian war amounted to — or just how glorious was Mussolini's victory over the savage — or how astute was the pre-war diplomacy of England and France, head bosses in the League of Nations.

"I do not suppose for a moment that the British Foreign Office realized that this (the selling of her mineral resources) was the only way Ethiopia could raise the money for a war with a great European power: or that they thought about Ethiopia at all. They never did think about Ethiopia. All that they wanted to do was not to appear to meddle in the affair: they were terribly pained that the Italians should accuse them of taking sides."

Mr. Steer, first British correspondent to reach Addis Ababa as war threatened the country, and last to leave, also tells us how Italy embroidered upon her completely unopposed air offensive.

"On Sunday, December 22, air squadrons, I do not know how many, rained yperite (mustard gas) upon Imru's advanced party. For the first time in the history of the world, a people supposedly white used poison gas on a people supposedly savage. To Badoglio, Field Marshal of Italy, must be attributed the glory of this difficult victory."

Most important, however, Mr. Steer has written modern history, a difficult task. He knows the geography, social system and cultural background of Ethiopia. He knows military tactics, and was in personal attendance at some of the important engagements of the war. He kept in close contact with the palace and with the emperor. He saw Ethiopia at her greatest, during the madly enthusiastic mobilization, and in her chaotic dissolution, during the riots in Addis Ababa. Besides gathering an immense factual knowledge, Mr. Steer also kept in mind a picture of the whole event with which he was dealing: with the result that we now have the ignoble truth of what happened to Ethiopia and to her heroic leader.

PROGRESS AND CATASTROPHE

BY

STANLEY CASSON

264 pages . . . New York: Harper and Brothers

Reviewed by "Volunteer"

This book is addressed to the optimists and pessimists among us. In it, for the first time, an archaeologist examines the whole course of human history with the purpose of discovering what Progress really is. What were the basic discoveries and inventions on which all civilization rests? What conditions have been favorable to human advancement? What unfavorable? What hope is there that civilization can survive the present darkening signs?

The main field of inquiry for the archaeologist is the period before 2000 B.C., when recorded history began. Pursuing his investigations here, Mr. Casson throws fascinating new light upon innumerable items in the panorama of Progress, such as the discovery of fire, man's first tool, the building of the first house, the beginnings of science, the origins of the family, of religion, of social and political institutions.

In the centuries since 2000 B.C. there have been two periods when civilization collapsed altogether — the first about 1200 B.C.; the second about 500 A.D. What, Mr. Casson asks, were the causes of these catastrophes that might serve as guideposts in analyzing the present? In answering this question, he dis-

covers startling parallels between the conditions which led to the destruction of those ancient civilizations and the conditions of our own day. He sees in the current rise and spread of Fascism the same barbaric forces which have twice halted the march of Progress.

Is mankind, then, facing a third catastrophe, a third period of universal war, a third Dark Age? *Progress and Catastrophe* carries the challenging hope that it is still not too late to avert disaster if we can be made to realize the necessity for cooperation against the common enemy —War.

HORSES IN SPORT

EDITED BY

FRANK A. WRENSCH

Illustrated . . . 132 pages . . . New York: William Morrow & Company

Reviewed by "Volunteer"

Here's a grand picture-book of more than 150 photographs — selected from the best horse pictures ever taken — with introductory articles from the galaxy of the best-known names in the world of equestrian sports.

Horses in Sport recaptures every sensation of track and field and show ring. There are few who do not thrill to the beauty and intelligence of horses in action. Here the keen pleasures of riding, or seeing others ride, can be relived. Here are subjects to produce the sharp gasp that greets a breath-taking jump, as well as the quiet satisfaction of woods, lanes, and mountain trails.

From Wyoming to Virginia, from the fashionable hunts of Aiken and Warrenton, to the timber of Maryland and the polo at Meadow Brook, this book presents an exciting panorama of horse sports of all kinds.

For quality of reproduction, authority of text, expert selection, *Horses in Sport* is another volume to rank high among Morrow sports books.

Mr. Wrensch has assembled the best photographs from the entire American scene, and they, together with the text, give the last word on every activity of horse and horseman.

AN AMERICAN HUNTER

BY

ARCHIBALD RUTLEDGE

(*Drawings by Lynn Bogue Hunt*)

Illustrated . . . 461 pages . . . New York: Frederick A. Stokes Company

Reviewed by "Volunteer"

This is a book that will strike home with any sportsman who is worth his powder.

It is filled with the beauty of fields and woods, with the bracing snap of a crisp fall morning, and colored throughout by a good hunter's love of his dogs, and keen respect for his game.

Archibald Rutledge is a sportsman in the finest sense, with that rare gift of expression that has made his writings known and enjoyed throughout America among the men who know a good honest hunting yarn when they find it.

Only one more gap had to be filled before this could stand as an ideal book for a man. Some one who knew the fields, the woods, the dogs, the game as well as Rutledge, some one who had the sportsman's *feel* was needed to give expression to this book in drawings — that were accurate, honest and beautiful.

No one is better qualified than Lynn Bogue Hunt who has decorated *The American Hunter* from bill to tail feathers and made it an everlasting treasure.

THE SWEET CRY OF HOUNDS

BY

E. Œ. SOMERVILLE AND MARTIN ROSS

Illustrated . . . 132 pages . . . Boston: Houghton Mifflin Company

Reviewed by "Volunteer"

Dr. Somerville already ranks with Vyner and Surtees as one of the classic writers on fox hunting. Her wide circle of enthusiastic readers will receive with delight this new book of her Irish hunting stories.

In her chosen corner of Southern Ireland meets are pleasantly informal, foxes all too elusive, and the pack not exclusively of conventional breed — but it is in these haphazard conditions

that her genius flourishes. How *not* to buy a horse, how the problem of a blank day was solved for the benefit of a visiting general, and the story of a modern Red Riding Hood — these are some of the subjects with which Dr. Somerville's lively pen and pencil are concerned.

TRUMPETS CALLING

BY

DORA AYDELOTTE

391 pages . . . New York: Appleton-Century Company

Reviewed by "Volunteer"

Martha Prawl was of the stuff of which true pioneers are made. A covered wagon could be a home to her. Sun and wind and winter cold of the newly opened Cherokee Strip she could accept with the calm fortitude of the woman of the frontier. Devoted mother and wife, she was such a lovable, courageous, and warm hearted character as all in need could turn to. Martha Prawl and her family and the families who became her neighbors are magnificently portrayed in the pages, home-spun and truthful, of *Trumpets Calling.*

The opening of the Cherokee Strip in Oklahoma marked one of the last of the great westward migrations. Here in the 1890's came a rush of homesteaders to the opening of new territory and high hopes. The Prawl family were an integral part of this typical American frontier movement, and with them we experience the heroisms and the hardships and the happiness that were the everyday realities of their lot. Here is Dave Prawl, vagabond and adventurer at heart, lending his hand to the making of a new town and a new state; here are Alma and Ben and Ernie, the children of the family, whose problems as they grew up were Martha's, too; here is Java, the little waif, who found a home with the Prawls.

Out of a stirring episode in American life comes this novel, which is impressive in its honesty and in the way it captures the spirit that enabled the Martha Prawls to answer, ever valiantly, "trumpets calling" to greater effort and a more enduring future.

THE PONY EXPRESS GOES THROUGH

BY

HOWARD R. DRIGGS

Illustrated . . . 208 pages . . . New York: Frederick A. Stokes Company

Reviewed by "Volunteer"

Pioneer adventure of the Old West holds a natural thrill for every true American. This new record of the Pony Express, that most heroic project of pioneer history, is superlatively thrilling because it comes straight from the men who put it through. It makes a saga of American youth, endurance and courage that is unmatched in history.

The brave boys and thoroughbred ponies who covered the dangerous run from St. Joe to Sacramento, carrying the mail through Indian-infested wilderness — desert, mountains, rivers and plains — represent the spirit that made the United States a country that cannot fail while we cherish that spirit.

Dr. Driggs, on many visits to the Pony Express trail, sought out and learned to know the men who, as boys, took the Pony Express oath of fealty in 1860 and '61. He tells their stories from their own lips, thus preserving an invaluable record for young Americans today who must carry on their tradition of keeping faith with an ideal.

THE SWORD AND THE ROSE

BY

A.W. SMITH

464 pages . . . Boston: Little, Brown & Company

Reviewed by "Volunteer"

The Sword and the Rose is a novel which could have been written only by a man who knew the English Army inside and out. This is a story of a famous British Regiment of the line, of the officers who command it, of the men who serve it, and of the women who follow its destiny in their hearts. It begins with the Officers' Mess of the Old Hundredth, dining formally on the eve of departure for two years' service in India. The traditions of the Regimental Mess link us inevitably with the past. Side

by side sit the decorated veterans of the Great War, men who have risen from the ranks, and juniors fresh from Sandhurst whose courage is still to be tested. As they sit discussing what lies before them in India, certain individuals emerge from the background and begin to quicken the imagination: Colonel Plant, the last of the old order; Major Vivori, the big-game hunter; Major Horder, the surly hard drinker; Boykett with his trepanned skull, less sound than he thinks; Lieutenant Pribram, the second-rater; and young Mansfield, the most promising of the subalterns. Officially these may be the watchdogs of the Empire; but inwardly they are men of heart as well as discipline, whose passions and aspirations the author so skillfully discloses.

The Regiment goes on duty in India and in a succession of swiftly moving panels we are shown the lives of its leading officers and of the women who have followed them abroad. We see the target practice in the blasting heat, and the carousal in Bombay; we see the tiger hunt in the hills; the absurdity of the Regimental dramatics; what the Mess does to a shirker, and what an army post means to the women of the regiment. The story reaches its climax in a stirring account of the fighting on the Indian frontier — chapters whose action and authenticity are beyond question.

NORTHWEST PASSAGE

BY

KENNETH ROBERTS

Maps . . . 709 pages . . . Garden City: Doubleday, Doran & Company

Reviewed by "Volunteer"

In *Northwest Passage* Roberts has taken as his central point the career of a great but hitherto almost unknown figure in Colonial history, that Major Rogers whose incredible exploits in the five years of the Old French War proved him the greatest of all Indian fighters. Equally vivid to the reader is Langdon Towne, artist and Harvard student, who, finding himself in trouble at Portsmouth, flees to Crown Point to enter General Amherst's army. At Crown Point he joins Rogers' Rangers, leaving the girl he loves and all his old life behind him. His career and Rogers' are intertwined from that point on. As Towne rises above adversity, Rogers is crushed beneath it. Seen

to the end through Towne's eyes, Rogers becomes a figure out of Greek tragedy, as he descends from his glory down the long chutes of time which lead at last to the miserable Fleet Prison. And Towne himself, with his own career and his own star-shot romance, is a memorable figure, gathering to himself the strength that made New England the spear-point of the colonies. *Northwest Passage* has literary distinction, historical accuracy, humor and romance.

TRAINING HUNTERS, JUMPERS AND HACKS

BY

LIEUTENANT COLONEL HARRY D. CHAMBERLIN

(Illustrated by Paul Brown and with photographs)

329 pages . . . New York: Derrydale Press, Inc.

Reviewed by "Volunteer"

Colonel Chamberlin's first book, *Riding and Schooling Horses*, has been accepted as the best American book on its subject. This, his second book, will quickly take its place beside the first, for the two volumes form the standard modern American work on riding, training and schooling horses.

In this book the author considers the selection, conformation and gaits of a horse, the beauties and defects of every part, head carriage and the objectives of training, the steps in breaking a colt, the advanced work in training and training the horse to jump.

Colonel Chamberlin's ability to put his vast knowledge of horsemanship in simple and thoroughly understandable language adds greatly to the value of his work.

READING COURSE FOR OFFICERS

War Department Bulletin, 1928

List of selected books relating to historical, political, economic, and military subjects, published for the information of the service.

This list is divided into sections corresponding to the several periods of an officer's service. Remaining sections will appear in future editions of the Quarterly.

FIRST PERIOD (AVERAGE FOUR YEARS)

(COMPLETION OF TROOP SCHOOL TO COMPANY OFFICERS' COURSE)

MILITARY MEMOIRS OF A CONFEDERATE. 1 vol. (Edward P. Alexander)
THE AMERICAN ARMY IN THE EUROPEAN CONFLICT. (Colonel Jacques de Chambrun and Captain de Marenches)
THE FIFTEEN DECISIVE BATTLES OF THE WORLD FROM MARATHON TO WATERLOO. 1 vol. (Sir Edward S. Creasy)
A BIRD'S-EYE VIEW OF THE CIVIL WAR. 1 vol. (Theodore A. Dodge)
NAPOLEON. A short history of the art of war. 4 vols. (Theodore A. Dodge)
THE DISCOVERY OF AMERICA. 2 vols. (John Fiske)
THE BEGINNINGS OF NEW ENGLAND. 1 vol. (John Fiske)
OLD VIRGINIA AND HER NEIGHBORS. 2 vols. (John Fiske)
THE DUTCH AND QUAKER COLONIES IN AMERICA. 2 vols. (John Fiske)
NEW FRANCE AND NEW ENGLAND. 1 vol. (John Fiske)
THE AMERICAN REVOLUTION. 2 vols. (John Fiske)
HISTORY OF THE UNITED STATES ARMY. 1 vol. (William H. Ganoe)
A BRIEF HISTORY OF THE GREAT WAR. 1 vol. (Carlton J.H. Hayes)
ROBERT E. LEE, THE SOLDIER. 1 vol. (Sir Frederick B. Maurice)
STONEWALL JACKSON AND THE AMERICAN CIVIL WAR. 2 vols. (George F.R. Henderson)
THE MEMOIRS OF BARON DE MARBOT. 2 vols. (Baron Jean B.A.M. de Marbot. Translated by Arthur John Butler.)
PIONEERS OF FRANCE IN THE NEW WORLD. 1 vol. (Francis Parkman)
THE JESUITS IN NORTH AMERICA IN THE SEVENTEENTH CENTURY. 1 vol. (Francis Parkman)
LA SALLE AND THE DISCOVERY OF THE GREAT WEST. 1 vol. (Francis Parkman)
THE OLD RÉGIME IN CANADA. 1 vol. (Francis Parkman)
COUNT FRONTENAC AND NEW FRANCE UNDER LOUIS XIV. 1 vol. (Francis Parkman)
A HALF CENTURY OF CONFLICT. 2 vols. (Francis Parkman)
MONTCALM AND WOLFE. 2 vols. (Francis Parkman)
THE STORY OF THE CIVIL WAR. 4 vols. (John C. Ropes. Last 2 volumes by Colonel Livermore)
AMERICAN CAMPAIGNS. 2 vols. (Text and atlas) (Matthew F. Steele)
THE OUTLINE OF HISTORY. 2 vols. (Herbert G. Wells)

LIBRARY BULLETIN

BOOKS ADDED TO THE LIBRARY SINCE MARCH 1938

Adler, Mortimer J.—**What man has made of man.** A study of the consequences of Platonism and Positivism in psychology. 1938 [150]

Allen, Hervey.—**Action at Aquila.** 1938 [M 9737-B3-F.73]

American Horse Show Association. — **Official horse show record for 1937.** Vol. IV. 1937 [M 403-G7.73]

American Society of Mechanical Engineers. — **George Westinghouse commemoration.** A forum presenting the career and achievements of George Westinghouse on the 90th anniversary of his birth. 1937 [973-B92 (WE)]

American Stud Book. Third Supplement to Vol. XVI: Foals of 1936 registered under the Jockey Club rules of racing. 1938 [636.13]

American Year Book. A record of events and progress in the United States, 1937. 1938 [973.91]

Angell, James Rowland.—**American education.** Addresses and articles. 1937 [370]

Angell, Norman.—**The defence of the Empire.** 1938 [M 103-C.42]

Aydelotte, Dora.—**Trumpets calling.** 1938 [813]

Badoglio, Pietro.—**The War in Abyssinia.** 1937 [M 963]

Baisley, Captain H.K.—**Aerial photography.** 1937 [*M 606-D1.73]

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Bartlett, John. — **Familiar quotations.** 1937 [803]

Belloc, Hilaire:

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Berry, Michael. — **Hunting by ear.** The sound-book of fox-hunting. With recordings by D.E.W. Brock and Ludwig Koch. 1937 [799.25]

Bertram, James M. — **First act in China.** The story of the Sian mutiny. 1938 [M 951-A]

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Code of the laws of the United States of America. Cumulative Supplement III (January 3, 1935 to September 2, 1937). 1937 [345.21]

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Command & General Staff School. — **Chancellorsville source book.** A compilation of historical material concerning the campaign and battle of Chancellorsville, 1863. 1937 [M 9737-J:63-C7]

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Catalog of the public documents of the Seventy-third Congress and of all departments of the Government of the United States, July 1, 1933 to December 31, 1934. 1937 [328.734]

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Foerster, Norman.—**The American State University.** Its relation to democracy. 1937 [378]

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Gilbert, David.—**Your life insurance and what to do about it.** 1937 [368]

Gowenlock, Thomas R. — **Soldiers of darkness.** 1937 [M 9403-H5-E4.73]

Great Britain. Committee of Imperial Defence. — **Order of battle divisions.** Parts 2a and 2b. 1937 [M 9403-H6-C.42-G]

Greenwall, Harry J. — **Pacific scene.** 1938 [M 950]

Griffith, C.R.—**An introduction to applied psychology.** 1937 [150]

Gurnee, H. — **Elements of social psychology.** 1936 [150.06]

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Schmidt, Carl T —**The plough and the sword.** Labor, land and property in Fascist Italy. 1938 [945-A]

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Social psychology. An analysis of social behavior. 1936 [150.06]
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Academic Notes

THE COMMAND AND GENERAL STAFF SCHOOL

CURRENT SCHOOL MATERIAL,
WHICH AFFECTS INSTRUCTIONAL PROCEDURE OR TACTICAL DOCTRINES

Commandant

BRIGADIER GENERAL C.M. BUNDEL, U.S. Army

Assistant Commandant

BRIGADIER GENERAL F.W. HONEYCUTT, Field Artillery

Secretary

LIEUTENANT COLONEL F. GILBREATH, Cavalry

Directors

Regular Class.....COLONEL K.B. EDMUNDS, Cav.
Special Class and Extension Courses.....COLONEL C.I. CROCKETT, Inf.

Chiefs of Sections

I. Offensive Operations.....LIEUT.COLONEL J.B. ANDERSON, F.A.
II. Intelligence, History and Strategy.....LIEUT.COLONEL K.G. EASTHAM, Cav.
III. Defensive Operations.....LIEUT.COLONEL G.R. MEYER, C.A.C.
IV. Supply, Evacuation and Logistics.....LIEUT.COLONEL T.K. BROWN, Cav.
V. Miscellaneous.....LIEUT.COLONEL R.E. MCQUILLIN, Cav.

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THE ARMY EXTENSION COURSES
AND
THE COMMAND AND GENERAL STAFF SCHOOL

1. INTRODUCTION. — No one agency for training plays as important a part in the theoretical training of the commissioned personnel of all components of our army as do the Army Extension Courses.

Whether one be an officer in the Regular Establishment, the National Guard, or the Organized Reserves, he might very properly ask himself the following questions concerning these Courses:

(1) What interest have I in this subject?
(2) How do the Army Extension Courses affect me?
(3) Why concern myself about them?

2. ARMY EDUCATIONAL SYSTEM. — In order to appreciate the answers to these three questions a general knowledge of our Army educational system is necessary. Also necessary is a knowledge of the two great fundamental needs which brought this system into being, i.e., *1st*, the need of training in higher command and staff functions of our Regular and National Guard Officers, and *2d*, the need of training of our Reserve Officers in the duties and functions of their war-time offices.

In the event of a major emergency, at least 85% of our officers must be men whose primary pursuits of life are civil in nature. Consequently if competent leaders are to be secured, two essential conditions must be satisfied. *1st*, there must be available a pool of potential war-time officers possessing the desired educational, moral, and physical qualifications. *2d*, this pool of officers must at least be trained in the duties of their war-time grades.

The 1st objective, that of having available a pool of potential officers, has been accomplished through the creation of the Officers Reserve Corps.

The 2d objective is being attained primarily through the conduct of the Army Extension Courses.

If the World War brought one thing of lasting benefit to the Service it was amplification of our Army educational system. The Army Extension Courses are one of the principal instruments of this system.

Most officers are familiar enough with our present system of military education. The general set-up is indicated below:

Army Educational System

- REGULAR ARMY
  - 1. Training with Troops.
  - 2. Schools
    - *a.* U.S. Military Academy.
    - *b.* Unit and Garrison.
    - *c.* Special Service.
    - *d.* General Service.
      - (1) Command and General Staff.
      - (2) Army Industrial College.
      - (3) Army War College.
  - 3. ARMY EXTENSION COURSES.
- NATIONAL GUARD
  - 1. Summer Camp Training.
  - 2. Armory Training.
  - 3. Service Schools.
  - 4. ARMY EXTENSION COURSES.
- RESERVE CORPS
  - 1. Active Training
    - *a.* Unit.
    - *b.* With Troops.
    - *c.* Service Schools.
  - 2. Inactive Training
    - *a.* Unit and Group Schools.
    - *b.* ARMY EXTENSION COURSES.

It is worthy to note that the Army Extension Courses enter into the theoretical training of all three components.

3. THE ARMY EXTENSION COURSES. — Set forth below are four convincing answers to the question as to why all officers of the Army are concerned and should have an interest in these courses:

a. The Army Extension Courses constitute one of the largest correspondence schools in the world.

b. Their enrollment includes over 96,000 officers and potential officers.

c. Within the period of one year 30% of *all* regular officers are concerned with it directly or indirectly.

d. It is one of the Army's most potent means of *Indoctrination and Instruction.*

4. MISSIONS OF ARMY EXTENSION COURSES. — Following are the several missions which the Army Extension Courses are designed to fulfill:

a. The primary mission of the extension courses is for reserve officers:

(1) To give them knowledge essential to war-time duty.
(2) To provide professional qualification for promotion.
(3) To create a basis for coordinated instruction in unit and group schools.

b. A secondary mission is to provide:

(1) Individual instruction to:
(a) National Guard personnel.
(b) Regular Army officers.

(2) Prepare potential students for resident courses at the service schools.

To date any use made of extention courses by officers of the Regular Army for this last purpose, is still voluntary.

There is a growing belief, however, that the successful completion of certain extension courses by Regular Officers before attending The Command and General Staff School should be obligatory in order to have all officers start the course with as near the same degree of preparedness as is practicable.

Experience with officers of the National Guard and Reserve Corps who have taken the Special Course at The Command and General Staff School for the past several years has clearly demonstrated the value of this latter mission. Officers taking this course are required to have completed the Command and General Staff Extension Course and for that reason start their course all on very much the same basis. Such is not the case in the regular class. For the first few weeks of the course, during the orientation period, those officers of the arms already well trained in the technique of the arms, by having attended their respective service schools, have a fairly easy time of it. Others, and principally those of the services, who have not had the advantages of this preliminary instruction, work hard in an effort to get themselves on an equal basis to pursue the remainder of the course.

5. CLASSIFICATION OF EXTENSION COURSES. — Extension courses are classified according to the different arms and services and the Command and General Staff School. There are nineteen courses in all, sixteen of the arms and services and three of the Command and General Staff School. The courses which constitute the Army Extension Courses are the extension courses of the:

a. Adjutant General's Department.
b. Air Corps.
c. Cavalry.
d. Chaplains Corps.
e. Chemical Warfare Service.
f. Coast Artillery Corps.
g. Corps of Engineers.
h. Field Artillery.
i. Finance Department.
j. Infantry.
k. Judge Advocate General's Department.

l. Medical Department.
m. Military Intelligence, Division General Staff.
n. Ordnance Department.
o. Quartermaster Corps.
p. Signal Corps.
q. Command and General Staff School (of which there are three, and which will be discussed later in detail).

The extension courses of each of the arms and services are arranged into specially numbered serials called the 10, 20, 30, 40, 50, 60 series inclusive, corresponding to commissioned grades from 2d Lieutenant to Colonel (Reserve), inclusive.

Each series of the extension course of each arm and service consists of subcourses arranged in logical and progressive order.

In general these subcourses cover those subjects, the knowledge of which one must have to qualify for initial appointment or for promotion in the commissioned grades of the Reserve Corps in the respective arm or service.

To qualify for appointment as 2d Lieutenant (Reserve), in an arm or service, the candidate must successfully complete Series 10 of the extension course of the respective arm or service.

To qualify for promotion to 1st Lieutenant, a 2d Lieutenant must successfully complete Series 20.

To qualify for promotion to Captain, the 1st Lieutenant must successfully complete Series 30; and so on.

The subject matter covered in the subcourses of the 10, 20, 30, and 40 series parallels as near as practicable corresponding instruction in the resident courses of the schools of each of these arms and services.

In order to show the general framework of these courses of the arms and services, the extension course of the Field Artillery has been selected.

Set forth below are the 10 series of the extension course of the Field Artillery. It includes ten subcourses covering the subjects shown and is the series that one must successfully complete in order to qualify for appointment as 2d Lieutenant (Reserve) in the Field Artillery.

EXTENSION COURSE OF THE FIELD ARTILLERY

SERIES 10 (For appointment as 2d Lieutenant)

Subcourse 1. — Organization of the Army (*Common Subcourse No. 17*), 4 lessons.
Subcourse 2. — Organization of Field Artillery, 4 lessons.
Subcourse 3. — Administration (*Common Subcourse No. 1*), 5 lessons.

Subcourse 4. — Military Law — Military Offenses (*Common Subcourse No. 14*), 7 lessons.

Subcourse 5. — Military Discipline, Courtesy and Customs of Service (*Common Subcourse No. 12*), 3 lessons.

Subcourse 6. — Interior Guard Duty (*Common Subcourse No. 10*), 3 lessons.

Subcourse 7. — Map and Aerial Photograph Reading (*Common Subcourse No. 11*), 14 lessons.

Subcourse 8. — Military Sanitation and First Aid (*Common Subcourse No. 15*), 5 lessons.

Subcourse 9. — Division Artillery Material and Ammunition, 9 lessons.

Subcourse 10.—The Firing Battery, 8 lessons.

Following are the 20 series of the extension course of the Field Artillery. It includes the eleven subcourses shown and is the series that the 2d Lieutenant (Reserve) of Field Artillery must successfully complete to be qualified for promotion to 1st Lieutenant (Reserve):

EXTENSION COURSE OF THE FIELD ARTILLERY
(*Continued*)

SERIES 20 (For promotion to 1st Lieutenant)

Subcourse 1. — Elementary Ballistics and Dispersion, 8 lessons.

Subcourse 2. — Administration.

Subcourse 3. — Preparation of Fire, 11 lessons.

Subcourse 4. — Supply and Mess Management (*Common Subcourse No. 22*), 8 lessons.

Subcourse 5. — Field Artillery Signal Communications, 14 lessons.

Subcourse 6. — Conduct of Fire, 12 lessons.

Subcourse 7.— Property Emergency Procurement and Funds (*Common Subcourse No. 19*), 6 lessons.

Subcourse 8. — Care of Animals and Stable Management (*Common Subcourse No. 3*), 6 lessons.

Subcourse 9. — Operation and Maintenance of Field Artillery Motor Transportation, 11 lessons.

Subcourse 10. — Defense Against Chemical Warfare (*Common Subcourse No. 7*), 5 lessons.

Subcourse 11. — Military Law — Courts Martial (*Common Subcourse No. 13*), 8 lessons.

Following are the 30 series of the extension course of the Field Artillery, that series which must be completed successfully by the 1st Lieutenant to be qualified for promotion to Captain:

EXTENSION COURSE OF THE FIELD ARTILLERY
(*Continued*)

SERIES 30 (For promotion to Captain)

Subcourse 1. — Preparation of Fire — II, 15 lessons.

Subcourse 2. — Conduct of Fire — II, 11 lessons.

Subcourse 3. — Mobilization (*Common Subcourse No. 16*), 6 lessons.

Subcourse 4. — Schedule of Fires, 12 lessons.

Subcourse 5. — Marches and Shelter, 13 lessons.
Subcourse 6. — (No subject assigned.)
Subcourse 7. — Field Artillery Combat Orders, 4 lessons.
Subcourse 8. — Reconnaissance and Occupation of Position, 14 lessons.
Subcourse 9. — Field Artillery Signal Communications — II, 10 lessons.
Subcourse 10. — Logistics, 13 lessons.
Subcourse 11. — Command and Staff Functions, 4 lessons.

Following are the 40 series — that series which the Captain (Reserve) Field Artillery must successfully complete to qualify for promotion to Major:

EXTENSION COURSE OF THE FIELD ARTILLERY
(*Continued*)

SERIES 40 (For promotion to Major)

Subcourse 1. — Field Artillery Combat Orders — II, 8 lessons.
Subcourse 2. — Command and Staff Functions — II, 8 lessons.
Subcourse 3. — Tactics and Technique of the Associated Arms, 23 lessons.
Subcourse 4. — Fire Direction and Tactical Employment of Artillery Fire, 12 lessons.
Subcourse 5. — Tactical Employment of Field Artillery, General, 7 lessons.
Subcourse 6. — Division Artillery in Defense Action, 12 lessons.
Subcourse 7. — Division Artillery in Offensive Action, 7 lessons.
Subcourse 8. — Corps and Army Artillery, 6 lessons.
Subcourse 9. — Field Artillery Training, 13 lessons.
Subcourse 10. — (No subject assigned.)
Subcourse 11. — Field Artillery With a Cavalry Division, 5 lessons.

Notice that each subcourse in each of the above series is a separate and distinct subject or study.

For the 50 and 60 series the subject matter for the arms and services consists of subcourses of courses of The Command and General Staff School.

For example the 50 series of the extension course of Field Artillery consists of the first four subcourses of the Command and General Staff Extension Course and the 60 series the fifth and sixth subcourses of the Command and General Staff Extension Course.

6. DIVISION OF SUBJECT MATTER FOR PREPARATION.—The preparation of the subject matter of all 19 courses can be divided into the following three principal groups.

a. Subjects pertaining solely to an arm or service — prepared by the respective arm or service.

b. Subjects pertaining to units of *combined arms and services* — prepared by The Command and General Staff School.

c. Subjects common to two or more arms and services (Common Subcourses) — prepared by an arm, service or The Command and General Staff School.

7. THE COMMON SUBCOURSE.—The subjects falling in this third group are classified as common subcourses. There are 23 in number and they are shown here. There is a common subcourse for each of the following subjects:

a. No. 1. — Administration.
b. No. 2. — Advanced Military Cryptography.
c. No. 3. — Care of Animals and Stable Management.
d. No. 4 (x). — Combat Orders and Solution of Problems.
e. No. 5. — Commercial Laws (Contracts).
f. No. 6. — Commercial Law (Property).
g. No. 7. — Defense Against Chemicals.
h. No. 8. — Elementary Military Cryptography.
i. No. 9. — Industrial Mobilization.
j. No. 10. — Interior Guard Duty.
k. No. 11. — Map and Aerial Photo Reading.
l. No. 12. — Military Discipline, Courtesies, and Customs of the Service.
m. No. 13. — Military Law — Courts Martial.
n. No. 14. — Military Law. The Law of Military Offenses.
o. No. 15. — Military Sanitation and First Aid.
p. No. 16. — Mobilization.
q. No. 17 (x). — Organization of the Army.
r. No. 18 (x).—Organization of the Infantry Division.
s. No. 19. — Property, Emergency Procurement, and Funds.
t. No. 20. — Signal Communication of All Arms and Services.
u. No. 21 (x). — Staff and Logistics For the Division.
v. No. 22. — Supply and Mess Management.
w. No. 23 (x).—Tactics and Technique of the Separate Arms.

As can be seen, this is a most complete and comprehensive list. Each one of these subjects is common to two or more arms or services; hence the name "common" subcourse. For example, administration is common to all arms and services while advanced

military cryptography is common only to military intelligence and the Signal Corps.

Each is used as a subcourse in one of the series of the extension courses of two or more of the arms or services. Take for example Common Subcourse No. 4, Combat Orders, and the Solution of Map Problems:

This common subcourse is used as Subcourse 4, Series 30 of the extension course of the Adjutant General's Department;

As Subcourse 9, Series 30 of the extension course of the Air Corps;

As Subcourse 1, Series 40 of the extension course of the Chemical Warfare Service;

And as a subcourse of a series of the extension courses of the Judge Advocate General's Department, the Military Intelligence Division, the Quartermaster Corps, and the Signal Corps.

An example of how these common subcourses fit into the extension courses of the different arms and services can be seen by referring back to the 10, 20, and 30 series of the extension course of the Field Artillery, shown in paragraph 5.

It will be noted that Subcourse 1 of the 10 series covering the subject of Organization of the Army is Common Subcourse No. 17.

Also that Subcourse No. 3 on administration is Common Subcourse No. 1.

Other common subcourses used as subcourses in this series are Nos. 10, 11, and 15 which are used as Subcourses 6, 7, and 8.

Common subcourses comprising subcourses of the 20 and 30 series of the Extension Course of the Field Artillery are similarly labeled and shown.

There are no common subcourses used as subcourses of the 40 series of the Extension Course of the Field Artillery.

Each of the common subcourses is "farmed out," so to speak, to the appropriate agency for writing. For example the following common subcourses are written at The Command and General Staff School:

No. 4. Combat Orders and Solutions of Problems.
No. 17. Organization of the Army.
No. 18. Organization of the Infantry Division.
No. 21. Staff and Logistics for the Division.
No. 23. Tactics and Technique of the Separate Arms.

8. EXTENSION COURSES OF THE COMMAND AND GENERAL STAFF SCHOOL.—We come now to the extension courses of The

Command and General Staff School. These subcourses are three in number.

a. The first course is "The Command and General Staff Extension Course."

The purpose of this course is to give instruction in command and higher staff functions. The course includes instruction necessary to give a general knowledge of the tactics and technique of the separate arms and services in the division, and the functions of commanders and general staff officers of divisions.

This is the course that is used as the subject matter for the 50 and 60 series of the arms and parts of it as the 50 and 60 series of the services as shown in the example of the 50 and 60 series of the extension course of the Field Artillery.

It includes six subcourses covering 50 lessons of instruction on subjects as follows:

Subcourse 1. — Preparatory Subjects; Tactics and Technique of the Separate Arms. (13 lessons — 106 hours)

Subcourse 2. — Tactics and Technique. (9 lessons — 82 hours)

Subcourse 3. — Troop Leading; Command, Staff, and Logistics. (6 lessons — 56 hours)

Subcourse 4. — Tactical Principles and Decisions. (9 lessons — 78 hours)

Subcourse 5. — Tactical Principles and Decisions. (6 lessons — 46 hours)

Subcourse 6. — Special Subjects (mobilization, supply, troop movements, military intelligence, and methods of training). (7 lessons — 66 hours)

The estimated time required for an average student to complete this course is 434 hours.

The weakness of any correspondence course lies in the fact that a student, in order to solve the problems, must glean for himself sufficient information from texts, necessarily general in nature.

The extension course student is not afforded the benefit of the oral instruction which amplifies those texts that is given to the resident course student.

In the revision of the last four subcourses of this course during the last school year, an experiment has been tried in an effort to overcome this weakness.

Issued with each one of these subcourses is a special text. Included in each special text is a chapter for each lesson of the subcourse. Each chapter is designed to play the corresponding part for a lesson that the conferences and lectures conducted from the platform do in the instruction of resident classes at

The Command and General Staff School. In most cases this is done by the use of an illustrative problem in which the basic principles of the particular subject covered by the text are stressed.

b. The second course of the extension course of The Command and General Staff School is the "Special Staff and Logistics Extension Course."

The purpose of the Special Staff and Logistics Extension Course is to familiarize the student with the duties of the division commander and certain members of his staff with special emphasis on problems of logistics.

This course is used as all or a part of the subject matter for the 50 series of the extension courses of all the services and some of the arms. For example, series 50 of the extension course of the Quartermaster Corps has 3 subcourses which are the 3 subcourses of this course.

It includes three subcourses covering 172 hours of instruction on subjects as follows:

Subcourse 1. — Military Organization; Combat Orders; and Estimate of the Situation. (5 lessons — 38 hours)

Subcourse 2. — Troop Leading; Command, Staff, and Logistics. (6 lessons — 78 hours)

Subcourse 3. — Command, Staff, and Logistics; Territorial Organization; Mobilization; and Troop Movements. (5 lessons — 56 hours)

c. The third course of the extension courses of The Command and General Staff School is "The Extension Course for Group Schools."

(1) *General.*—This third course is one of the most ambitious schemes yet undertaken. It is a new course and is based on an entirely new and original conception.

Throughout the country and in our foreign possessions, are some 1200 group schools of Reserve Officers which meet on an average of twice a month. Depending on the size of the locality, these group schools consist of from 30 to 300 officers of all grades from 2d Lieutenant to field grades and of all arms and services.

Attendance at these schools is voluntary. One can imagine the task of the poor unit instructor who is supposed to make these schools interesting enough to attract as large an attendance as possible.

The object of this course is both to standardize and facilitate instruction in these group schools as well as to lighten the burden

of and to assist those unit and group instructors, both Regular and Reserve, charged with their conduct.

(2) *Subcourses.*—This course appears in three subcourses and is now in its third year of use throughout the service.

(3) *Lessons.* — (a) Each one of the subcourses presents a continuing situation of eight lessons, each lesson being contingent on the preceding lesson. Lessons of the three subcourses cover the reinforced brigade in the tactical operations shown below:

SUBCOURSE I:

Lesson 1. — Advance and Development for Attack.
Lesson 2. — Conduct of Attack.
Lesson 3. — Conduct of the Attack and Utilization of Reserves.
Lesson 4. — Follow-up of Withdrawal from Action.
Lesson 5. — Organization and Occupation of a Defensive Position.
Lesson 6. — Conduct of the Defense.
Lesson 7. — Counterattack.
Lesson 8. — Withdrawal from Action.

SUBCOURSE II:

Lesson 1. — Initial Contact.
Lesson 2. — Preparations for Attack.
Lesson 3. — Conduct of Attack (Holding Attack).
Lesson 4. — Pursuit.
Lesson 5. — Breaking Off Pursuit and Occupation of a Delaying Position.
Lesson 6. — Conduct of Delaying Action.
Lesson 7. — Defense — Selection, Organization and Occupation of a Position.
Lesson 8. — Conduct of Defense.

SUBCOURSE III:

Lesson 1. — March by Daylight; Security on the March.
Lesson 2. — Security at a Halt.
Lesson 3. — Active Defense.
Lesson 4. — Counteroffensive.
Lesson 5. — Redevelopment for the Attack.
Lesson 6. — Preparation, Dispositions and Orders for the Attack.
Lesson 7. — Conduct of the Attack.
Lesson 8. — Conduct of the Pursuit.

(b) Each lesson is divided into four sections:

Section I includes the general situation giving the background of the problem and the special situation which gives the detailed plan of the brigade commander for the tactical operation covered by the lesson in question.

The third part of Section I of each lesson contains twelve unit situations for units of the lower echelons based on the situation of the brigade and the plan of the brigade commander.

These unit situations cover the situation of units of the arms and services represented in the reinforced brigade as follows:

Two for Infantry (one relating to the battalion; one relating to the company or smaller unit).

Two for Field Artillery (one relating to the battalion; one relating to the battery or smaller unit).

Five for Auxiliary Arms and Services (one each relating to the cavalry, air service, antiaircraft, medical, and engineers).

One Selected Requirement Relating to a Special Service or Special Unit (chemical, signal, quartermaster, motor transport, ammunition train, tanks, or military police).

Two for Supply and Administration (one relating to the brigade or regiment; one relating to the battalion or smaller unit).

One occasionally relating to a staff section.

Section II includes the requirements for each unit situation given in Section I.

Section III includes the solutions for each unit requirement included in Section II.

Section IV includes a discussion of the solution of each unit requirement which is quite in detail and is of such a nature that it serves as a guide to the unit instructor in his discussion.

(4) *Procedure of Group School.*—The usual procedure for the conduct of this course is as follows:

(a) Students are divided into 12 groups, one for each unit situation.

(b) The instructor explains the general and special situation.

(c) Each group solves simultaneously its respective unit requirement.

(d) A spokesman for each group then gives the solution of his group.

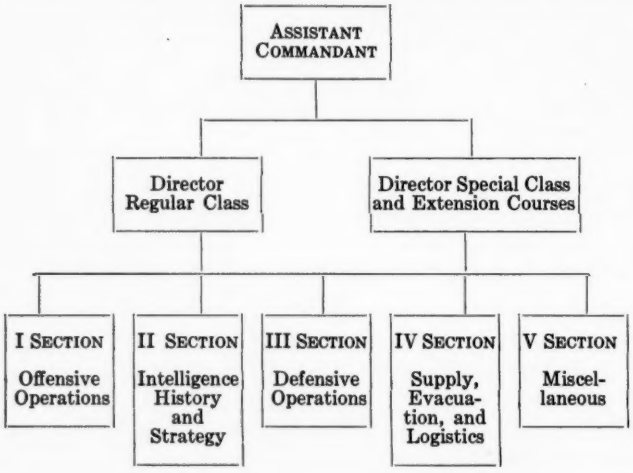
(e) The instructor then holds a brief critique covering the various solutions.

The success of this course in each group school, of course, depends largely on the skill and willingness of the unit instructor.

This course is not an extension course in the true sense of the word. Lessons are not mailed to students to be solved and then returned to be graded in order to determine their qualifications for promotion. Each lesson is really a two-hour map exercise prepared at The Command and General Staff School in such a way that the unit instructor with a certain amount of preparation should be able to present an interesting course of instruction for a two-hour period, regardless of the number of students, their rank or branch of the service.

9. AUTHORS OF COMMAND AND GENERAL STAFF EXTENSION COURSES.—A point of interest should be how the extension course work fits into the organization of the faculty work at The Command and General Staff School. All extension course lessons are prepared under the supervision of the Director of the Special Class and Extension Courses, acting for the Assistant Commandant, just as the instruction for the Regular Class is prepared under the supervision of the Director of the Regular Class.

Academic Department, Command and General Staff School



All lessons are coordinated through the regular five sections of the academic department according to the nature of their subject matter. Chiefs of Sections assign extension course lessons to regular instructors of the resident classes in their sections as a part of their proportionate instruction load.

Through this practice the extension course work follows closely the doctrines and policies of the School at least for the year during which they are written.

Extension courses are normally revised every three years. In the past extension course work at this School has been arranged so that one-third of the courses written here are revised each year.

However, revision of extension courses at The Command and General Staff School during the school year 1937-1938 has been

deferred pending official publication of the new Tables of Organization.

Extension Course students should realize that Extension Course lessons cannot be kept entirely up to date with resident instruction. Lessons that are written during a school or fiscal year are not distributed to Corps Area and Department Extension Course Schools until the following school year.

It is the present intention of The Command and General Staff School to revise completely the Command and General Staff Extension Course, the Special Staff and Logistics Extension Course and Subcourse I of the Extension Course for Group Schools during the school year 1938-1939; this revision to be based on the new Tables of Organization. If the new Tables of Organization are not available sufficiently early, the revision will have to be deferred another year.

However, even if these three courses are revised during the school year 1938-1939 it will not be possible to distribute them to the Corps Area and Department Extension Course Schools until July 1939 for use during the school year 1939-1940.

Considering that these courses will not again be revised for three years, it can be seen how some of the policies and doctrines taught in the extension course lessons may be from one to three years behind the resident instruction.

It is estimated that the extension course work at The Command and General Staff School constitutes about 30% of an instructor's annual load.

10. CONCLUSION. — It is hoped that those who have read this far will be able to appreciate the far-reaching influence of this great university of war — its ramifications extending as they do throughout the entire United States and into the most remote corners of our most distant overseas possessions. In way of comparison reflect for a moment how pitifully small is the number of students reached by The Command and General Staff School each year as compared to the number reached through the Army Extension Courses; one-third of one per cent — for those reached by all service schools, one per cent.

It is impressive to note that The Command General Staff School alone mails annually some 45 tons of material, consisting of over 200,000 printed lessons; some 38,000 miscellaneous printed "special texts" and more than one-quarter million maps.

All officers of the Army of the United States are earmarked as especially qualified for extension course work in some capacity.

Any capacity for which an officer may be selected is worthy of the most earnest effort, for it is sincerely believed that the final merits of this great system will ultimately be reflected in the success or failure of our arms on the battlefields of our country.

CORPS AREA COMMAND AND STAFF SCHOOLS FOR NATIONAL GUARD OFFICERS

A new course in command and staff training for National Guard officers was first established in the school year 1936-1937. Its purpose is to provide command and staff training for those officers who are prevented from attending the Special Course for National Guard and Reserve Officers at The Command and General Staff School because of business or professional reasons. Because of limitations as to funds available the new course was conducted during the first year only in the Second and Sixth Corps Areas. The course demonstrated that the training received at these schools was very satisfactory and of particular value in the development of National Guard staff officers. Reports submitted to the War Department from the Second and Sixth Corps Areas strongly recommended its continuance.

Because of the success of these schools in the school year 1936-1937 they were continued in the Second and Sixth Corps Areas in the school year 1937-1938 and will again be continued in the school year 1938-1939. Efforts were also made to obtain the necessary appropriations to extend them to all other seven corps areas in 1937-1938. These efforts, however, were unsuccessful. At the date of this writing it is still hoped that this course can be extended to one or more of the other seven corps areas during the coming school year.

The course of instruction rendered is an abridgement of the course now prescribed for the Special Class for National Guard and Reserve Officers at The Command and General Staff School. It covers the combined use of all arms and the command and staff functions in the infantry division — the smallest unit of the combined arms. The course consists of three progressive subcourses, which are given in three periods of two weeks each year for three years.

The enrollment in the school of each corps area at present is limited to twenty officers. Graduates of the Special Course of The Command and General Staff School are ineligible.

Applications to attend are considered and selections made from the groups shown below in the following priority:

a. Brigade and division staff officers of field grade and commanders down to include battalions, who have been prevented from attending any Service School.

b. Brigade and division staff officers of field grade and commanders down to include battalions, who are graduates of a Special Service School.

c. Captains, whose mobilization assignment carries promotion to the grade of field officer.

d. Specially selected staff officers below field grade.

The completion of Subcourse I of the Command and General Staff Extension Course, or the completion of a course at a Special Service School, is a prerequisite for attending these schools.

The schools are held at a conveniently located place. In the Second Corps Area the school was held in the Administration Building at Camp Dix, New Jersey. Student officers and instructors resided in the Administration Building where adequate facilities were also available for a lecture room.

In the Sixth Corps Area the school was held in the Armory of the 124th Field Artillery in Chicago, Illinois. At this school student officers and instructors resided in nearby hotels.

Officers attending the school are placed on an active duty status.

The preparation of all instruction material is done at The Command and General Staff School. The instruction material for each subject includes one or more of the following:

a. An instructor's manuscript for use as a guide in presenting the subject.

b. Illustrative problems.

c. Maps and overlays accompanying illustrative problems.

d. Wall charts, or lantern slides, which are to be used by an instructor in the presentation of any subject.

e. Copies of such Command and General Staff School standard forms and other printed or mimeographed material to be issued to the students.

Each course is conducted by regularly detailed instructors with the National Guard, who are graduates of The Command

and General Staff School, designated by, and functioning under, the Corps Area Commander. The instructional team normally consists of four officers, who are qualified to represent the four General Staff Sections, and who come from the principal arms.

To keep the instruction abreast with the teachings of The Command and General Staff School it is planned to replace a certain number of regular officers detailed as National Guard instructors in each corps area each year with recent graduates of The Command and General Staff School.

DIRECTORY OF PERIODICALS

Included in this directory are only those periodicals from which articles have been selected.

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CATALOG OF SELECTED PERIODICAL ARTICLES

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ARMY ORDNANCE

March-April 1938

OUR MAINTENANCE OF AIR POWER. RESPONSIBILITIES OF THE ARMY AIR CORPS AND INDUSTRY. Major General Westover

"EUROPE IN ARMS." AN ANALYSIS OF LIDDELL HART'S RECENT STUDY. Nickerson

FORECASTS FROM THE WAR IN SPAIN. LESSONS BASED ON TECHNICAL AND TACTICAL EXPERIENCE. Lieut.Colonel Emilio Canevari, Infantry Reserve, Italian Army

PREPAREDNESS IN ENGLAND. A STUDY OF INDUSTRIAL MOBILIZATION. (III) Major Codd, Ordnance Reserve

ARMY QUARTERLY (Great Britain)

April 1938

LUDENDORFF. By "Archimedes"

THE CHAIN OF COMMAND. Captain Wynne

DEFENCE OR ATTACK? Major Sheppard

THE ATTACK BY INFILTRATION AND THREE UNIT ORGANIZATION FOR RIFLE BATTALIONS. Lieut.Colonel Sherbrooke

THE JAPANESE PUNITIVE EXPEDITION IN CHINA. Leurquin

THE MILITARY IMPORTANCE OF THE ITALIAN THEATRE OF WAR

BULLETIN BELGE DES SCIENCES MILITAIRES (Belgium)

BY CAPTAIN WENDELL G. JOHNSON, Infantry

October 1937

WAR OF THE AUSTRIAN SUCCESSION.
[La Guerre de la Succession d'Autriche.] General Van Egroo

Resume of events in Europe leading up to the war, discussion of the art of war in the mid-eighteenth century, brief of Marshal Saxe's military biography, the campaigns of 1744, 1745, 1746, 1747, 1748, and remarks.

REORGANIZATION OF BRITISH INFANTRY.
[La réorganisation de l'infanterie britannique.]

The five metropolitan divisions of the British army were to have been completely reorganized in the autumn of 1937. The infantry brigade consists

of three rifle battalions having portable "Bren" machine guns. In the division there are three brigades and two division machine-gun battalions, which are provided also with heavy mortars. The 1st Division still has two brigades in Palestine; the 2d Division is composed of Guards. The 4th and 5th Divisions are partly reorganized. The 3d Division is already reorganized. The assignment of the components of the 3d Division and their designations is listed.

THE JAPANESE MOBILE DIVISION.
[La division d'infanterie légère japonaise.]

The Japanese mobile division, which was organized prior to hostilities in China, is designed to perform missions of reconnaissance and security. It is entirely motor carried.

It consists of: headquarters, two infantry regiments, one mechanized regiment, one artillery regiment.

The infantry regiment comprises three battalions of three rifle and one machine-gun company; total, 2,080 men. Its armament: 1,600 light automatics, 48 heavy machine guns, 12 antitank machine guns, and 6 81-mm mortars.

The mechanized regiment contains a tank battalion, a motorized battalion and a light infantry battalion: 1,680 men, 30 [50 ?] tanks, 12 armored cars, 4 mortars.

The artillery regiment has three groups of three batteries each.

The entire mobile division numbers 10,500 men, 1,000 trucks, 50 tanks.

THE SCOTTI-MAUSER AUTOMATIC RIFLE CALIBER 0.31.
[Le fusil automatique "Scotti-Mauser" "calibre 7 mm. 9."]

The breech mechanism of the Scotti automatic has been applied to the Mauser rifle. The new automatic is 1.151 meters long, weighs 4.23 kilograms, and is considered an easily handled weapon. The barrel is 60 centimeters long and its sight is calibrated from 100 to 2,000 meters.

The breech is automatically closed by the forward movement of the breech mechanism, and thereupon the piece is fired. Gas pressure, following the firing, causes the unlocking of the breech, recoil, extraction of the empty case, and compression of the recoil and firing-pin springs. After each shot the breech remains open, thereby avoiding the heating and possible firing of the cartridge in the chamber.

Data on this weapon: weight of empty magazine, 7 grams; weight of magazine with 5 cartridges, 126.5 grams; weight of cartridge, 23.9 grams; weight of ball, 10 grams; weight of charge, 3.2 grams; length of cartridge, 280.6-mm [?]; length of ball, 28.4-mm; muzzle velocity, 835 meters per second (2,739 f/s); rate of fire, 42 to 60 rounds per minute.

The Mauser bayonet can be used with this rifle.

AVIATION REVIEW.
[Revue aérienne.]

Germany.—The four-motored Dornier DO-19 has a retractable landing gear, is all metal, and the wings form a V with the fuselage. The three-bladed props are of metal and are variable pitch. Top speed is 235 miles per hour.

Great Britain.—The Handley Page "Harrow" heavy bomber can also serve as a transport plane with a capacity of 30 men fully equipped. Two, 9-cylinder, Pegasus, 915 H.P. motors carry variable pitch, metallic, three-blade propellors, "Havilland Hamilton."

Weight in flight, 10,660 kilograms; speed at 3,000 meters, 320 kilometers per hour; cruising speed at 4,500 meters, 260 kilometers per hour; ceiling, 5,800 meters; radius of action with normal bomb load, 2,000 kilometers; maximum radius of action, 2,960 kilometers.

Italy. — New organization of air force. The Italian aviation comprises a headquarters, four air regions in Italy, a headquarters in East Africa and four districts: Sicily, Sardinia, Libya, and Aegean Sea.

Military aviation (Armata Aerea) comprises 93 groups and a number of squadrons. These groups are organized into regiments, brigades, and divisions, and are under the region commander.

The aviation for cooperation with the ground army (Aviazione per l'Esercizio) comprises 15 reconnaissance groups divided into 5 regiments.

Naval aviation (Aviazione per la Marina) is composed of four groups, not counting the squadrons of observation hydroplanes or the planes aboard battleships.

The aviation of colonial police (Aviazione di presidio colonialo) is scattered in small units; destined both in peace and war to operate with the police forces of the colonies.

The army of the air is subject directly to the Minister of Aeronautics.

In January 1932, the total personnel consisted of (parenthetical figures indicate the totals to be reached by 1941): 4,087 (7,670) officers of whom 2,258 (4,283) pertained to the navigating personnel (reserve officers not counted); 8,144 (12,647) under-officers, of whom 1,868 (2,950) pertained to navigating personnel (pilot sergeants of short service not included).

Czechoslovakia.—The new antiaircraft machine gun. The Czechoslovakian army has recently been armed with a Brunn antiaircraft machine gun, M1935. This gun can be fired automatically or semiautomatically, and either on wheels or from a platform with the wheels raised. The gun is air cooled. Weight of gun alone, 62 kilograms; weight of carriage with wheels, 233 kilograms; length of gun, 2 meters; length of barrel, 1.4 meters; caliber, 20-mm; elevation, from [—] 15 to 85 degrees; traverse, 60 degrees; traverse on platform, 360 degrees; rate of fire, 280 rounds per minute; practical rate, 120 rounds per minute; range, 5,000 meters; vertical range, 3,700 meters. Tracer, solid, H.E., and instruction shells are manufactured.

EMPLOYMENT OF PARACHUTE TROOPS.
[Emploi des troupes parachutistes.]

Digest of study in "La France Militaire" of German views on the use of parachute troops and the means of defense against them.

In addition to missions behind enemy lines, the author sees the rapid reinforcement of weak holding detachments as a suitable employment of parachute troops — particularly when motor-carried troops cannot get through.

To provide protection against enemy parachutists dropping behind the lines, the Germans plan to organize and arm civilians and place them under former officers. Their duty would be: seeking information, surveillance of the skies, and attack upon parachutists while still in the air or immediately upon landing. Mobile troops also should be in reserve to combat such enemy incursions.

ANTIAIRCRAFT WEAPONS.
[Commentaires sur la guerre aérienne.]

A table is given of several types of antiaircraft weapons and their principal characteristics.

MOTORIZATION AND MECHANIZATION.
[Motorisation et Mécanisation.]

France.—The Renault D-1 tank which came out in 1935, has the following characteristics: weight, 11 tons; armament, one 47-mm cannon and two machine guns; crosses vertical obstacles 1.2 meters high, and ditches 2.0 meters wide and 0.9 meters deep; knocks down trees 30 centimeters in diameter (one foot); climbs 35-degree slopes; crew, three men; carries radio antenna; length, 5.3 meters; width, 2.18 meters; height, 2.4 meters; speed, 18 kilometers per hour.

Great Britain.—Vickers-Armstrong antitank gun. A 75-mm gun was brought out in 1937 by Vickers-Armstrong primarily as an antitank gun,

but with any mobile object as a secondary target. On its platform it has a 360-degree traverse. On the march it is carried on rubber-tired wheels. It fires both shell and shrapnel. The projectile weighs 6.5 kilograms, has a muzzle velocity of 595 meters per second (1950 f/s), and a range of 11,600 meters. The gun weighs 394 kilograms, its carriage 1,086.8 kilograms.

Switzerland.—The Oerlikon automatic infantry cannon of 20-mm caliber has a range of 5 kilometers. Its muzzle velocity is 850 meters per second which enables it to pierce 30 millimeters of armor at 500 yards. It is designed both for firing at low-flying planes and armored vehicles. The carriage is carried on pneumatic tires, and weighs 255 kilograms. The carriage can be broken into small loads not exceeding 35 kilograms in weight.

CHARACTERISTICS OF SOVIET TANKS (POLISH REPORTS).
[Caracteristiques des chars de combat soviétiques (d'après des indications polonaises).]

TYPE	WEIGHT (TONS)	ARMAMENT	CREW	SPEED (KM/HR)	REMARKS
Light "MS"	5.9	1 MG 1 37-mm	2	20	
Extra light T.27 (Carden Loyd)	.....	1 MG	2	.....	Longer than Carden Loyd
Medium "BT" (Christie)	.....	1 MG 1 37-mm	.....	.....	
Light "T 26"	7	1 MG 1 37-mm	3	.....	37-mm gun has m/v of 2624 f/s
Amphibian	.....	1 MG	.....	.....	
Heavy	.....	1 cannon & 1 MG in turret 2 MG in smaller turrets	.....	.....	
Armored car "BA 27"	4.5	1 small cannon and 1 MG	4	45	
Bronieford reconnaissance car	.....	1 or 2 MG	2	.....	1.6 meters high torpedo chassis
Armored car Lanchester type	6–7	1 MG & 1 37-mm in turret 1 MG forward	.....	.....	

SIGNAL COMMUNICATION IN THE GERMAN ARMY.
[Les transmissions dans l'armée allemande.]

Digest of article by L. Pericaud in "Revue des Troupes Coloniales," August 1937.

THE DUTCH FLEET.
[Les flottes de guerre des petits Etats: La Hollande.]
A summary of Dutch naval vessels and characteristics of these craft.

THE NEW GAS MASK FOR GERMAN CIVILIANS.
[Le nouveau masque à gaz pour la population allemande.]
A new type mask is soon to be distributed to German civilians. It is briefly described.

GERMAN LOSSES DURING THE WORLD WAR.
[Le chiffre des pertes dans la Guerre Mondiale.]
Ten tables giving German losses in officers and men from various causes and under various forms of combat during the World War. Seemingly an excellent collection of statistics. Much of it is, however, based largely on figures for the 19th Bavarian Reserve Regiment. It brings out particularly the terrific defensive power of modern weapons.

November 1937

THE DEFENSE OF DIXMUDE 17 OCTOBER TO 10 NOVEMBER 1914.
[Pages d'histoire de l'Armée Belge au cours de la guerre 1914-1918: Dixmude, 17 octobre-10 novembre 1914.] (I) Major Wanty

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THE SWISS CITIZEN ARMY.
[L'armée de milice suisse.]
Resume of two articles appearing in the "London Times," 29 and 30 June 1937, relative to the organization of the Swiss army, the problems of Swiss national defense, and the general plan of providing adequate defense. A good study.

THE VERISIMILITUDE OF TACTICAL PROBLEMS.
[La vraisemblance des problémes tactiques.] General Visconti-Prasca

The author attacks the artificiality and non-adherence to combat conditions which seem to be inherent in all tactical exercises.

For example, the academic layout of a problem always is conveniently oriented along or parallel to crests, road net, and water lines. Rather should the initial line of the exercise be traced blindly in order more nearly to approach true combat conditions.

Similarly when tanks are to be used, we find them committed exactly when and where desired and thereafter — even though they constitute but a secondary element of the ensemble — the entire affair gravitates about them.

The author goes on to condemn the practice of utilizing observation posts for units larger than a regiment, or even a battalion — an impossibility in war. Commanders of units larger than a battalion normally must reconstruct the situation through the eyes of others. Good liaison should be stressed, both in peace and war time, rather than the establishment of observation posts. Then the view of the battle would become a problem of synthesis, discernment, and interpretation, and would demonstrate the real difficulty of command.

Another common fault is the excessive rapidity with which problems are carried out. The clock that regulates the progress of the combat is the overloaded rifleman, tired, underfed, in need of sleep, and subjected to enemy fire.

Surprise in the nature of ambush should not be carried higher than the patrol or platoon, for it cannot be realized by larger units. The situation

doesn't change with lightning speed within the sphere of battalions and larger units: strong enemy forces do not appear suddenly, unexpectedly; time is required to concentrate men and weapons. Accordingly, the changes in the situation, prepared for the training of staffs, should be calculated on a basis of reality.

Another matter in which there should be more simplicity is in the multiplicity of places that must be searched for by name: hills, streams, crossroads, etc. In battle, a commander gradually becomes oriented on terrain features. This is often forgotten in peacetime when preparing map and terrain exercises, with the result that much time is consumed in merely getting oriented.

General Visconti-Prasca concludes with the observation that every convention and artifice of time and space must be avoided in tactical exercises.

ITALY: PURSUIT PLANE "FIAT G-50."
[Italie: L'avion de chasse "Fiat G-50."]

The Fiat G-50 monoplane has the following principal characteristics: Retractable landing gear; two machine guns in cabin and a bomb release device; variable pitch three-blade propellor; 850 H.P. Fiat "A74 PG-38" motor; weight empty, 1,800 kilograms; weight in flight, 2,240 kilograms; maximum speed 460 kilometers per hour at 13,000 feet; cruising speed, 260 miles per hour; landing speed 70 miles per hour; climbs to 16,000 feet in 6 minutes; theoretical ceiling, 36,000 feet; radius of action, 420 miles.

JAPAN: NEW FAST PLANE.
[Japon: Nouvel avion rapide.]

The Asakadze plane built by the Mitsoubici company and put into service in the Asahi Simbounsia company is of the Kamikadze type monoplane.

This type of plane is 8.20 meters long, weighs 1,450 kilograms empty and 2,300 kilograms in flight. Its maximum speed is 500 kilometers per hour; radius of action, 2,500 kilometers; motor, 700 H.P. at 13,000 feet.

CHARACTERISTICS AND EMPLOYMENT OF FRENCH D TANKS.
[Les caractéristiques et l'emploi des chars D.] General Culmann

The author comments upon the recently published provisional instructions on the employment of the D tank.

The French D tank is a medium tank of from 13 to 15 tons, carrying armor of 20 millimeters or greater thickness, and armed with a 47-mm cannon and two machine guns. Its maximum speed is 12 miles per hour, 5 miles per hour in combat, and 2 to 3 miles per hour in rough terrain; its radius of action, 50 miles. It carries 90 shells and 2,000 cartridges. D tanks carry short-wave radio sets with a 3 to 6 kilometer range of operation.

These tanks are designed to operate only with infantry, and accordingly are to neutralize arms whose fire prevents infantry advance. They must be protected by antitank guns. The instructions speak of automotive armored cannons to intervene in zones where the tanks are beyond the protection of the initial fires. "These cannons are to serve as relays of the base of fire." Accompanying the waves of tanks, this cannon is indispensable to destroy adverse antitank guns that could not be located beforehand.

D tanks are division weapons. They may be attached to regiments when gaining contact, and for exploitation, counterattacks, etc. They also may form the backbone of mechanized detachments operating independently.

The attack procedure follows this general scheme:

From rear to front there are first the infantry with its accompanying tanks echeloned 500 meters in depth; ahead, the tanks of "manoeuvre d'ensemble" in two echelons with a depth of 800 meters and having the motor-

ized, armored cannons with the first echelon; finally, the zone of protective artillery fires (75-mm and 155-mm) 600 meters in depth, boxing the attack and protecting the leading echelon of D tanks.

The normal front of attack of a company of D tanks varies from 600 to 800 meters, similar to that of a rifle battalion. In secondary attacks or in gaining contact, this front may be widened to cover a regiment. The interval between tanks is not to be less than 50 meters.

All the platoons of D tanks debouch simultaneously; this may precede, accompany, or follow the jump-off of the infantry. "Powerful artillery support is essential."

When armored, motorized guns become available, the provisional instructions probably will be modified. The "manoeuvre d'ensemble" echelon will be eliminated and the attack echelon will consist as formerly of D tanks and infantry, cooperating in accord with methods now under study. These changes will intensify the surprise element which is the principal factor in every attack with tanks.

December 1937

RAID ON CANOPUS TRENCH, 28 JULY 1918.
[Pages d'histoire de l'Armée belge au cours de la Guerre 1914-1918. — Le coup de main sur Canopus-Trench, du 28 juillet 1918.] Captain Renier

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A YEAR OF WAR IN SPAIN, JULY 1936 — JULY 1937.
[Un année de guerre en Espagne (juillet 1936-juillet 1937).] (I) Major Wanty

A chronological account of the first year of the Spanish Civil War. Compared with all data on the war which this reviewer has examined, the present account appears to be reasonably accurate. In several instances, however, the author has made deductions and assumptions which may be questioned. This is particularly true of his treatment of the early operations in 1936.

RELATIONS BETWEEN GOVERNMENT AND THE HIGH COMMAND. FRENCH EXPERIENCES, 1914-1918.
[Les rélations entre le Gouvernement et le Commandement. Expériences francaises, 1914-1918.] Captain Fraeys

A recitation of the friction, interference, and tempestuous interventions experienced by the French commanders in chief under the various war ministries during the World War. The author concludes that mutual confidence is the element that must prevail if successful arbitration of frictions is to be achieved.

CAVALRY IN RIVER CROSSINGS.
[La cavalerie dans le franchissement des cours d'eau.]

French cavalry maneuvers in Morocco, last year, were oriented principally around river crossings.

The Oued River was 300 to 400 feet wide, had high banks and was bordered by bluffs some 300 to 500 feet high. The most practicable fords were four feet deep or more. In the zone of operations, there were two bridges 16 miles apart.

The river was defended by a covering detachment comprising two infantry battalions, two artillery batteries, three cavalry troops, two platoons of armored cars. These elements were soon reinforced by a third battalion, one more armored-car platoon, and ten transport trucks.

The attacking force (west) occupied a diamond shaped area measuring 18 miles on a side, and having its center at 44 miles from where the crossing was to be made. This force consisted of a cavalry regiment, two goums (companies of native partisans), and the following motorized elements: a

motor-carried infantry regiment, an artillery group (battalion), two troops of armored cars, a bridging train, a company of engineers, and a medical company.

During the night, the West commander moved his force up to the river and sent reconnaissance and security elements forward to the stream and across it (where possible). The automotive detachments were held on the routes of approach; mounted detachments attempted to cross the stream in places where there were no roads. The automotive detachments soon discovered that the bridges were destroyed or defended.

The first mounted detachment failed in its attempt to cross the river. The second detachment succeeded in crossing but was driven back to the west bank by a counterattack.

Close-in reconnaissance determined the crossing points, and the main body effected a crossing. By 9:00 AM of the following day, the mounted troops, two infantry battalions, and the goums had reached the east bank, and had forced the adversary to abandon the vicinity of one of the destroyed bridges.

During the night, a ponton bridge of 9 tons was built, which enabled the armored cars, artillery, and supplies to be taken across.

The attacker had succeeded; he had established a means of crossing for his heavy elements; he had cleared enough ground on the east bank to be able to deploy his artillery, cross his reserves, and maneuver; he had assured the antiaircraft defense of the means of crossing.

To gain sufficient area on the east bank the attack was obliged to achieve surprise. The operation had to be carried out rapidly, on a wide front, and with strong forces.

Experience has shown that a defender with even mediocre means of communication, transport, and limited means, can react within three or four hours of the beginning of a crossing. Also to be considered is the probable action of armored fighting vehicles which the defender may have available. Accordingly, the attacker should have his antitank weapons cross immediately behind his first elements.

The construction of rafts may be necessary, so the engineers should be prepared therefor.

Supporting fires must be prepared to come to the aid of the first elements to cross, for they may be stopped by even a relatively weak counterattack.

The farther the crossing points are from the keypoints — bridges, roads, etc. — the more likely the attackers are to find a weak defense.

Experience showed in this case that the greatest possible number of mounted men should be pushed across the river — a fact worth remembering in connection with surprise operations of this sort.

A crossing by assault is attempted in force against an adversary that is strongly organized; it is undertaken by surprise against an adversary that is acting as a covering force or is retreating, and is weak and widely extended.

A crossing in force is a matter of ample means; a crossing by surprise is a matter of speed — and thus is within the field of cavalry operations. It may, of course, include all or a part of the elements of an infantry division.

The cavalry should cover the flanks of the attack, deceive the enemy on the extent of front and the objectives, extend these by trying to reach the hostile rear, and cover and reconnoiter for the bridgehead force. Thus, it is essential to maneuver across the terrain, to be flexible, to move with dispatch.

AVIATION REVIEW.
[Revue aérienne.]

Germany.—Junkers "Ju-90." Description of a four-motor, commercial plane carrying forty passengers.

Belgium.—"Stampe & Vertongen" "SV-4/B." Description of stunt training plane to be used for advanced pilot training. Weight: empty, 1,100 pounds; loaded, 1,716 pounds. Motor: "DH Gipsy Major," 120/130 H.P. Speed: 134 miles per hour; landing speed, 43 miles per hour. Reputed to be an excellent plane of its sort, far surpassing similar planes of its type in strength, utility, and capabilities for aerial maneuver.

France.—"Amiot-370" bimotor Hispano-Suizaizy. Monoplane having a dead weight of 9,460 pounds, and total weight of 22,660 pounds. Cruising speed at 13,000 feet, 248 miles per hour; maximum speed, 295 miles per hour.

Great Britain. — Fairey Battle "cooperating" [observation] plane. A single-motor observation plane, built almost entirely of light metal; may be used to carry a bomb load. Maximum speed, 257 miles per hour at 15,000 feet, with a Rolls-Royce "Merlin" motor of 1,035 H.P. Total weight about 10,780 pounds.

EMPLOYMENT OF ANTIAIRCRAFT PROJECTORS.
[L'emploi des projecteurs de D.T.C.A.] Lieutenant Kroes

The use, mission, and cooperation with other arms of antiaircraft projectors.

THE MERCHANT MARINE.
[La marine merchande.] Seidenzahl

The merchant marine of various nations is as follows: Great Britain, 17,183,000 tons; United States, 11,905,000 tons; Germany, 3,708,000 tons; France, 2,973,000 tons; Japan, 4,216,000 tons; Holland, 2,507,000 tons.

CAMOUFLAGE WITH A FAN.
[Un moyen pratique de camouflage.]

A large fan made of whalebone and lattice work is suggested by a Lett for camouflaging purposes. The lattice work could be covered with varying colored materials according to the terrain and season, or even with appropriate materials at hand, such as straw, boughs, leaves. Opened up, the fan measures 2½ by 5 feet. Closed, it is 2½ feet long, weighs 2 pounds and can be slung over the shoulder like a rifle. An opening near the base permits observation and fire.

So far as possible, this affair should be set up facing the sun. To an unsuspecting eye it is unrecognizable at 150 to 300 yards, or through field glasses at 600 to 700 yards; it simply looks like a little bush.

Such an arrangement for individual camouflage might also be adapted to antiaircraft camouflage. Nets of, say, 10 by 10 yards could be raised with cords and stakes to give cover for any sort of matériel — wagons, trucks, tanks, artillery, command posts.

In lieu of Lithuanian whalebone, commercially made lattices of artificial whalebone might be substituted.

CHINESE TREATIES AND AGREEMENTS, 1901-1937.
[Traités et accords chinois (1901-1937).]

Brief summary of treaties and concords bearing upon the Sino-Japanese conflict.

CANADIAN DEFENCE QUARTERLY (Canada)

April 1938

THE PROBLEMS OF CANADIAN DEFENCE. By "Canuck"
A DIVISION THAT CAN ATTACK. Lieut.Colonel Burns
GREAT BRITAIN'S MILITARY STRENGTH. Lieut.Colonel Baird Smith
THE SINO-JAPANESE CONFLICT. Colonel Nikolaieff

CAVALRY JOURNAL

March-April 1938

THE ELEMENT OF SURPRISE IN WARFARE. Colonel Miller
THE PROTECTION OF CAVALRY AGAINST LIQUID VESICANTS. Major Earnest

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CAVALRY JOURNAL (Great Britain)

April 1938

APPRENTICESHIP OF MECHANIZED CAVALRY. Major Sheppard
A NOTE ON INTER-COMMUNICATION FOR MECHANIZED CAVALRY. Lieut. Colonel Straight

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COAST ARTILLERY JOURNAL

March-April 1938

ANTIAIRCRAFT INCREASE. Major General Sunderland
CAMOUFLAGE FOR AA ARTILLERY. Captain Rodyenko
VON HINDENBURG. DeWeerd
MG FIRE CONTROL DEVELOPMENTS. Captain Schmidt
YUGOSLAV ARMY. Shaw

FIELD ARTILLERY JOURNAL

January-February 1938

THE GERMAN BREAKTHROUGH ON THE DANUBE FRONT IN 1915. Captain Gordon-Smith. Attaché Royal Yugoslav Legation
THE NEW INSTRUCTIONS FOR EMPLOYMENT OF ARTILLERY IN THE GERMAN ARMY
ORGANIZATION OF GERMAN DIVISION FIELD ARTILLERY

March-April 1938

MECHANIZED FIELD ARTILLERY. ITS ORGANIZATION, FUNCTIONING, AND TACTICAL EMPLOYMENT. Major Perry
THE CONFERENCE-DEMONSTRATION METHOD OF TACTICAL INSTRUCTION. Colonel Paxton
WORKMEN MEETS TOOLS. Lieut.Colonel Meyer

FIGHTING FORCES (Great Britain)

February 1938

DEFENCE OR ATTACK? Major Sheppard
AIR DEFENCE. By Our Air Correspondent
DAUR AND TIKRIT. Lieut.Colonel Burne
THE ELASTIC ATTACK. By "James Pigg"

April 1938

DOES THE ORGANIZATION OF THE ARMY FIT ITS FUNCTIONS? Liddell Hart

THE CHINESE AIR FORCE

XX.—THE CAVALRY AT SHARQAT. Lieut.Colonel Burne

"THE OFFENSIVE IN DEFENCE." Flight-Lieutenant Heath

LA FRANCE MILITAIRE (France)

BY MAJOR T.R. PHILLIPS, Coast Artillery Corps

2 January 1938

ANTITANK DEFENSE.
[Défense antichars.]

To expect some chances of success in a defensive battle it is necessary to have a great variety of means. Distribution in depth is another obvious requirement. But with reference to obstacles it may be dangerous to dispose them in depth. If they are placed in the interior of the position they may hinder the defense seriously, particularly if they happen to be in a zone where counterattacks must be made. What was intended to stop the hostile tanks may stop our own.

Antitank defense in depth, therefore, will have to be supplied by the fire of antitank guns. But when the front lines have been well supplied with antitank guns there remain only a few to make a scattered defense in the rear. The value of such a defense is doubtful, since a tank breakthrough will be followed up with rapidity. One is forced to the conclusion that the antitank defense of the secondary positions will have to be in the form of a highly mobile reserve of antitank guns. This reserve can prepare to move into the principal tank corridors leading into the position on short notice. Reserves of tanks must also be available to assist in the defense.

It is essential that the enemy tank force be deprived of artillery support, which can destroy the antitank defense. Our own counterbattery fire aided by ample aerial observation provides the means for this. Terrestrial observation is too often unable to see the targets. The collaboration of the air is thus necessary if the antitank defense is to succeed and this cannot be assured unless observation is amply protected by pursuit. One must conclude that antitank defense is not a function solely of the antitank guns and obstacles, but that all the means at the disposal of the commander must be coordinated to that end if the defense is to be effective.

3 and 4 January 1938

REFLECTIONS ON THE ETHIOPIAN WAR.
[Considérations sur la guerre d'Ethiopie.] Colonel Baron

Obviously the Ethiopian War cannot be compared to an European war. Nor can the army of the Negus be compared, even distantly, in organization, discipline and command with the German, French or even Swiss army. The Italians are the first to refrain from illusions on this subject; they have a quality, sufficiently rare, of not underestimating an adversary. This much admitted, the Ethiopian War is rich in instruction.

From the point of view of command, while recognizing the important preparatory work of General de Bono, the direction of active operations fell to Marshal Badoglio in the north and to General Graziani in the southeast. The methods of Marshal Badoglio are especially interesting to study, since he is designated to command the Italian armies in case of a war in Europe. On 1 February 1936, just before his offensive on a front of 300 kilometers, he telegraphed to Mussolini: "I have always followed the principle of being meticulous in preparation, in order to push the victory to the greatest extent."

This care not to unleash an offensive until he had meticulously prepared it, this preoccupation to have an almost sure success, were evident during the entirety of this hard campaign. In fact, especially on the north front, the Ethiopian War can be broken up into periods of more or less long preparation followed by active and victorious operations. There were periods of preparation from the end of November 1935, to 18 January 1936, preceding the first battle of Tembien; that of 23 January to 10 February 1936, before the battle of Anderta; one from 16 to 19 February preceding the march to Zamra; from 21 to 26 February before the capture of Alagui; that of 23 January to 19 February before the second battle of Tembien, etc.

On 4 April, after the victory of Lake Achangui, resisting all urgings, Marshal Badoglio remained faithful to his policy not to pursue his operations before they were completely prepared; he would not authorize pursuit of the Negus until 30 April when he had completed his roads south and collected 3,000 motor vehicles.

One can hardly resist expecting that the care exhibited by the Italian commander in Ethiopia is to be expected from the same commander in Europe. He has said: "In a war of movement it is essential not to stop once the offensive has commenced; that is why the offensive should not be unleashed until all the troops are prepared, and supply, especially of munitions, is ready."

Among the Italian high command in Ethiopia, the principal advisers of making haste slowly were those officers of many years life in Africa and experience in colonial wars. Mussolini, who did not hesitate to throw into the conflict newly drafted men and Fascist militia, the greater part of whom had never set foot in Africa, was careful to place at their head experienced colonials and qualified African campaigners.

17 January 1938

PROGRESS OF MOTORIZATION IN THE RUSSIAN ARMY.
[Les progrès de la motorisation de l'armée russe.]

According to the Polish press, motorization and mechanization has made great strides in the Russian army. In the maneuvers in White Russia all the trains were motorized; in addition, each regiment of infantry had a company of amphibian tanks and each division was supplied with a battalion of tanks. High speed divisions as well as mechanized and motorized brigades participated in the maneuvers.

The Polish press confirms the fact that the Russians are forming combat teams which include tanks and artillery in units as small as the regiment and battalion; these plans are already realized and have for object an unusual independence of tactical action in these units. Likewise they plan on improvising such units when the occasion requires it.

According to reports the Russian motor-mechanized brigade has less artillery than the German armored division, but this is not precisely true since each Russian battalion has some motorized artillery. The brigade is equipped with 27 medium tanks and 228 light tanks, six sections of motorized artilllery and one group of artillery of two batteries.

All of the Russian divisions and brigades are supplied with reconnaissance elements; those for distant reconnaissance consisting of combat cars and motorcycles; those for tactical reconnaissance before combat consisting primarily of light tanks. Finally, the shock elements should be mentioned. These are supplied by heavy tanks.

As for the infantry, it reaches the locality of combat either on cross-country vehicles or in light tanks and is supplied with large numbers of light and heavy machine guns and an ample number of antitank guns.

21 January 1938

INDUSTRY AND NATIONAL DEFENSE.
[L'Industrie et la Défense nationale.] General Rouquerol

One of the most suggestive facts of the debut of the World War is that the first battles exhausted all the resources in munitions of the belligerants.

The same supply preoccupations arose on both sides of the front. On both sides also, delay in organization of needed manufacture imposed restrictions on the use of artillery for several weeks and weighed heavily on operations.

It is certain that prompt industrial mobilization would have given a superiority, decisive even, to the party that had been foresighted enough to prepare it.

This lesson has not been forgotten. Industrial mobilization is now judged by specialists to be as important as the mobilization of man power. However, public opinion fails to realize the great importance of these measures and objects to the expenses incident thereto. It requires a meticulous preparation of industrial means and the maintenance of an organization constantly keeping up with mechanical progress. It is the ransom for peace of our epoch.

But all the peace time prevision to assure satisfactory production in time of war is futile if the factories remain subject to the discretion of our adversary on account of closeness to the border. The spreading of factories susceptible of being used for war manufactures into the interior of the country has vital importance. The necessity of an industrial policy that will guarantee to the fullest measure the security of the factories is obvious. The work of such an industrial policy is slow as it will require the displacement of industrial activity from certain regions. But this is a good reason for persevering in an economic movement to orient industry in a sense favorable to national defense.

"The war," wrote the engineer Henri Mochel, "scattered the factories of the northern and eastern frontier, but since the war we have not merely reconstituted it, but super-reconstituted. Considering the happy reannexation of Alsace and Lorraine, three-quarters of the capacity of our basic industries today is massed on the menaced and most vulnerable frontier."

"At the same time the war increased the congestion of the Paris region. When peace came nothing was done to diminish it. The result is that our manufacturing industries are almost half massed in a region an hour and one-half's flight from Cologne."

The author of these lines adds that on account of this industrial congestion Paris shelters one and one-half million workers of which a sixth are foreigners. He concludes that "diplomacy, strategy and economics are evidently ignored."

It is true that, in general, the choice of location of factories is determined by considerations of exploitation and presence of primary materials; but the importance of these considerations has been diminished considerably by the development of means of transport. Industrial policy should find a useful support from this fact.

The promoters of the canal between the two seas envisage industrial changes beneficial to national defense along these lines as well as from other points of view not less important. Facilities of water transport will not fail to start a movement of many industries toward the southwest of France.

The industrial activity created in this region will conciliate the advantages of a privileged economic situation with the necessities of national defense.

22 January 1938

THE BELGIAN SUPERIOR SCHOOL FOR GAS DEFENSE.
[L'Ecole supérieure de protection contre les gaz de combat en Belgique.] General Niessel

The unsatisfactory results obtained in France toward preparation of protection of the civil population against the aerial danger is stupefying. One part of this is protection against gas, although one should never forget that high explosive bombs are the most dangerous and that incendiary bombs will be troublesome.

The mediocre results come from failure to create schools intended to prepare the civilians who will be charged with the organization of the protection of the population: almost completely ignorant of their role, they do not worry about fulfilling it, and the prefects who should direct and control them, equally ignorant, abandon them to their apathy.

In Germany, in each of the 15 regions of aerial defense, a school assures the preparation of cadres of passive defense, and the superior general staffs of this defense are instructed in a special central school. It is the same in Italy.

In 1936, when Great Britain decided to rearm and to prepare a civilian defense against the aerial threat, the first governmental measure was the opening of a school for the formation of the directing personnel.

A "Commissariat Général de la Protection Aérienne de Territoire" for the preparation of passive defense has existed in Belgium, under the direction of General Termonix, for several years. The Superior School for Protection against Gas was opened at Liege, 2 June 1937. The instructors are drawn from professors of medicine and chemistry from the universities and from the army medical corps. Its role is twofold:

(1) To study toxic gasses experimentally from the chemical, physiological, prophylactic and therapeutic points of view.

(2) To disseminate the results of these schools in the cities and villages of the country, principally from a practical point of view. It is intended to educate the country toward a unity of conception of the subject and to direct all efforts with a view to creating organizations of protection, and to control them.

The course in the superior school consists of theoretical instruction, demonstrations and practical exercise conducted in cooperation with the medical service of the army.

The number of students is from twenty to thirty a course. They are chosen from civil occupation which predispose them to benefit by the instruction: doctors, pharmacists, chemists, engineers, etc. They are expected to act as provincial inspectors and will be charged with control and preparation of passive defense measures. Members of the government: labor inspectors, sanitary inspectors, Red Cross officials, and lately, representatives of large industrial firms, are also being sent to the school.

It seriously is to be hoped that this example will be followed in France. Our public authorities, under the impulsion of the Minister of the Interior, and the responsible prefects, should start to work in earnest to prepare the protection of the population against the aerial danger.

29 January 1938

INFORMATION FROM A BELGIAN SOURCE ON THE SPANISH WAR. [Un renseignement de source belge sur la guerre d'Espagne.] General Niessel

The "Belgique Militaire" has just published a very interesting analysis of a brochure in which a Belgian reserve lieutenant, who had fought in the World War, M. Van den Bossche, tells under the title: "Je Parle au Peuple" [I speak to the people.], his impressions of the Spanish Government army. He entered the army voluntarily on 1 October 1936, as a major and was placed by Largo Cabellero, the War Minister at that time, at the disposition of General Asensio, commander of the Fifth Army. The picture the author gives of the situation at Madrid at the moment of his arrival is not flattering.

"At the time I arrived in Madrid," he writes, "complete anarchy reigned. The militia went to the front when they pleased, the leaders abandoned the line of fire to return home to amuse themselves in Madrid. The Minister of War's office could be entered like a mill. The offices were swamped by a multitude of men in ultra comic uniforms arguing, yelling, gesticulating, and who demanded all sorts of inconceivable things. Each of them believed himself the salvation of Spain and prevented those who had the heavy responsibility of operations from working. But let the one beware who failed to lend himself to the fantasies of these individuals who believed that everything was possible for them. In those times revolvers were drawn from their holsters quickly."

M. Van den Bossche was quickly struck by the fact that above the government and the military authorities there existed political forces, which although adhering to the Popular Front, hindered the action of the respon-

sible powers: on one side the communists, on the other the anarchists. The latter prepared a coup de force with the view of the collectivization of Spain. As for the communists, advised by the agents of the Comintern, they infiltrated in all the departments of the government and took over the principal agencies of command, in order to be able, when the time came, to proclaim the Soviet Republics of Spain.

"All of this was taking place under the noses and beneath the beards of the left socialists and republicans, those eternal blind. There were struggles between communists and anarchists, who vowed death to each other, which have placed the republic in the inextricable situation where it now finds itself and where it struggles with the force of despair and from which it cannot leave except vanquished. For now one can say that they have lost the war."

The presence of the communists everywhere, the author remarks, has led to the employment of the procedures common in Russia: informers, exactions, murders, arrests, pillage, etc.; in brief, a frightful regime of terror in the three important cities still in the hands of the Republicans — Madrid, Barcelona and Valencia. Each political party has its own police, in spite of the existence of Government police. These irregular police, recruited from the dregs of the population, profit naturally by not going to the front. They attack everyone who is not on their side or who are considered by them as lukewarm to the regime. By lukewarm to the regime is meant those who wish it were over with and who have been imprudent enough to say so.

Wholesale arrests, the result of odious manhunts, which the communiques call "work of purification" were many. The victims are thrown in one of the numerous prisons, which are always gorged with those detained. These, after long weeks of delay, go before soviet type of tribunals, from which the executioner's axe almost always awaits them.

"I have seen hundreds of dead lying face down on the ground along the roads I used going to the front early in the morning. All were killed according to the method imported directly from Russia, that is to say, killed by a bullet in the nape of the neck. One day I counted forty-eight of them on the six miles between Madrid and Vicalvaro: two children, three women and forty-three men."

Arriving at the Fifth Army, M. Van den Bossche was charged with the organization of transport and supply of the army, spread on a front of 120 miles. This new picture is rather severe according to him:

"The situation, as concerns supply especially, was indescribable. The organization commanders, from the lowest to the highest grades seized everything by strong arm methods without regular orders. Their procedures resembled raids. Not satisfied with what the military supply agencies furnished them, although it was extensive, they went, accompanied by a sufficient number of men, and forced regular contributions from the merchants. They took everything that they saw and carried away much that they would never know how to use. And misfortune to the merchant who made the slightest protest. The account of the 'dirty fascist' was quickly settled. Plenty of notes have been thus liquidated with revolver shots instead of pesetas. Each organization commander, by this procedure, constituted a depot . . . which was abandoned as soon as the time of retreat arrived. One can say that the Insurgents obtained a good part of their food and clothing from these abandoned magazines. If the population living under the yolk of the 'Popular Front' suffer from lack of food, the responsibility belongs almost entirely to those who have practiced these thefts and pillages. I managed, to a degree, to restrain the ardor of these pillagers and to establish a little order in all this disorder. This was not without difficulty, for those who were much more highly placed than I, who held the reins of power and were in a position to intervene, never did or only with the greatest prudence."

M. Van den Bossche had many different employments for the Government, notably as head of the Supply Staff of the General Staff of the International Brigades (General Kleber). That of commander of Fuencarral (Madrid) won him the presentation of a Sword of Honor, etc. This did not prevent him from being arrested and thrown into prison by forty police

of the anti-fascist Vigilantia and of appearing on 4 April before Special Tribunal No. 1. The tribunal admitted that no charge had been made against him. Fifteen days later, the Government reconducted him to the frontier, along with another Belgian officer who also had exercised the functions of higher command.

"The brochure, 'Je Parle au Peuple'," states Belgique Militaire at the close of its analysis, "contains much other information which merits attention, notably on the subject of the situation in Catalonia, on the International column and the volunteers of diverse nationalities which form it. But we believe we have abstracted enough to show that the reading of this little brochure gives some enlightening material on what is happening in Spain on the Government side and which is generally very little known."

5 February 1938

MOVEMENT OF MOTOR-MECHANIZED TROOPS.
[Déplacement des troupes moto-mécanisées.]

According to the "Daily Telegraph," London, a large number of division and brigade commanders with their staffs have been engaged in studying all the questions involved in the movement of motorized and mechanized troops. The primary object of these studies is to find means of protection against aerial attack.

The first objective is to seek invisibility. This requires above all the giving up of movement in massed columns. One proposal is to divide the zone over which movement is to be made into sectors both in width and depth, alloting a sector to a portion of the force for a prescribed length of time. The manner of movement within the sector will be determined by the commander of the troops. The average speed of movement has been set as about 25 miles an hour. The dispositions on march should approach those of civilian traffic as nearly as possible. During halts all vehicles must have cover. If no cover is available then the vehicles should have considerable distance between them. In case contact with the enemy is possible, no movement should be made in motors except with the protection of a security screen furnished by the mechanized forces.

Traffic control for this type of movement is a function of the brigade, but for movements a specialized traffic control force is attached. It is expected that large maneuvers to try out these ideas will take place in the near future in England.

11 February 1938

THE MINISTRY OF THE AIR AND THE AUTONOMY OF THE AIR ARMY.
[Ministère de l'air et autonomie de l'armée aérienne.] General Culman, Retired

In Germany, General Goering wished to adopt, with modifications, the strategy of General Douhet, according to which the defensive being easy along the terrestrial and naval frontiers, aviation, essentially an offensive instrument, would seek the decision alone. The military success of a night was to be the destruction of Paris by aerial bombardment and a breakthrough of the Maginot line by mechanized and motorized formations. This agression, undertaken by surprise, without declaration of war, without even a preceding diplomatic tension, was to cause such moral depression in the country that the war would be terminated before we would be able to think of repelling the attack or conducting reprisals.

The dream of General Goering — the autonomy of the air army — was soon discarded by the Reichsheer, although not without violent struggles. Nevertheless, for fear of wounding the susceptibilities of this high and powerful personage, and to lead the adversary into error, the fiction of "The Commander in Chief of Aviation" was maintained.

Besides, General von Cochenhausen, the excellent strategist of the new German army, declared that the sudden bombardment of the capital or of a great industrial center, converted hypothetically into a pile of smoking debris from which all life had disappeared, would not provoke a moral effect

on the enemy greater than that of a defeat in the field. Particularly it would stimulate the will to resist and the desire for reprisals, awakening forces and passions which otherwise might never become effective.

The current wars have justified the views of Admiral Castex and of General von Cochenhausen. In China, Shanghai with a dense population, with narrow streets, has been subjected to multiple bombardments by aviation; on such an objective the effects have been formidable Nanking endured an almost continuous bombardment, as have Canton and Hankow. In Spain, Madrid and Barcelona, among others, have been subjected at different times to severe bombings.

But neither in Asia nor in the Spanish peninsula has the theory been confirmed that such bombardments will terrify the civil population to the point where they will force their government to sue for peace. The will of the people to continue the war not having been dampened, the military results have been almost nil, to such an extent that the aerial aggressions appear completely barbarous and futile.

One should add that antiaircraft defense has made considerable progress: in Spain, out of one hundred planes destroyed seventy were its victims. On the contrary, in 1914-1918, the pursuit plane was the more effective agent of protection at least three-quarters of aerial losses were due to it, and of the last quarter, machine guns were responsible for the larger part. The antiaircraft cannon manifested itself inferior.

The wars now being fought also confirm the ancient principle of liaison of arms and armies: "Just recently, in 1935 and 1936, eighteen years after the Great War," wrote Admiral Castex, "we are concerned in knowing if the Italian army has occupied Ethiopian territory, or if Franco's army has occupied all the territory of Spain. The aviation of the belligerants was of interest especially on account of the support it gave to their earthbound troops."

In the wars of the past, as in those of the future, decisive results are obtained and will be obtained uniquely by fire-power. But, up to the present, the fire of aviation, however impressive it may be, is feeble, discontinuous, circumstantial. Assuredly its role will increase, but it will not be important except in liaison with the other arms.

Fully aware of the solid foundation of these diverse considerations, German strategy actually sanctioned General von Fritsch, commander in chief of the Reichsheer, and by Colonel Beck, chief of the Great General Staff, also professes that the object of war is the conquest of enemy territory, and not destructions in the rear which will not suffice to overthrow an enemy whose morale is solid. The direct blow of the concentrated forces of aviation will be executed at the end, when the opposing army has been beaten and despair seizes the rear areas.

In a recent book, "The New German War," Helmut Klotz states: "Goering's war had every chance of being lost in the first blow. The Reichswehr's war will not be undertaken unless its favorable chances are real . . .; it will not be less dangerous, on the contrary . . . The Reichswehr is more economical of its haste and its resolution to wage war . . ."

"The danger of seeing the army and navy placed bruskly before a fait accompli has been escaped. The aviation as an autonomous arm was in the hands of a gambler."

The aerial army will have to play an important role in the terrestrial and naval struggles. Placing it under a ministry of air is indicated in France with the reservation that the liaison between the three armies shall be regulated in each case by superior authority, in accordance with the object to be attained. The great autonomous raids of the aerial army on nerve centers, administrative and industrial rear areas will be justified only after a grave defeat inflicted on the enemy on the ground.

13 and 14 February 1938

CHINESE PARTISAN WARFARE.
[La guerre de partisans chinoise.]

"Krasnaia Zviezda," organ of the Red army, recently has called attention to the partisan warfare being fought, Chinese elements operating for

the most part on the Japanese rear; numerous detachments of Chinese partisans actually are causing considerable trouble for the Japanese. Certain detachments operate in conjunction with the regular troops, especially in some of the mountainous regions. In Shansi, the detachments are well organized and under the command of General Tchan-Inou. Most of the partisans are former soldiers of the 29th Army, some students and some workers. A large force of partisans has penetrated the province of Hopei. One group alone of 6,000 is under the command of Li-Sia-Fei. Another group made up initially of 500 students of the University of Peking and now number over 2,000 is commanded by Professor Ian-Siou-Line. The development of partisans has furnished an important support to the Chinese army.

INFANTRY JOURNAL

March-April 1938

GUADALAJARA: AN AERIAL COUNTERATTACK. Lieutenant Rudolph
MODERN DEFENSE TRENDS. Major Tindall
SPAIN: A YEAR AND A HALF OF MODERN WAR. Captain Johnson
GERMAN ARMY — 1914-1938 (Pictures)

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS (Great Britain)

February 1938

ORGANIZATION AND FUNCTION OF MEDICAL ARRANGEMENTS IN COMBINED NAVAL AND MILITARY OPERATIONS. Lieut.Colonel Martyn
THE TRANSPORT, CARE AND MEDICAL TREATMENT OF GAS CASUALTIES. Colonel Muntsch

April 1938

SIMPLE METHODS FOR COOLING MILITARY VEHICLES. Lieut.Colonel Thompson

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JOURNAL OF THE ROYAL ARTILLERY (Great Britain)

April 1938

"THE FAR EAST." A LECTURE DELIVERED AT THE ROYAL ARTILLERY INSTITUTION, 12TH JANUARY, 1938. Sir Frederick Whyte
TANKS, AIR AND GAS. THE FIELD ARTILLERY PROBLEM. By "Chalk"
"FIRE MANOEUVRE." OR THE APPLICATION OF FIRE AND ITS CONTROL IN THE FRENCH ARTILLERY. Commandant Poydenot
FURTHER REFLECTIONS ON ZEEBRUGGE. A REPLY TO "CENTAUR." Major Murley

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February 1938

THE NATIONAL WILL TO WAR. Captain Smith
THE NEW INFANTRY WEAPONS. Lieut.Colonel Sherbrooke
SINO-JAPANESE BACKGROUND. Lieutenant Ravenhill

INTERNATIONAL RELATIONS
THE SINO-JAPANESE WAR
THE SPANISH CIVIL WAR

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA

(Great Britain — India)

January 1938

THE ACTION OF THE 1ST (ABBOTTABAD) INFANTRY BRIGADE NEAR DAMDIL, 29TH MARCH, 1937

"FIRE DESCENDED FROM HEAVEN." (Gold Medal Prize Essay, 1937) Lieut.Colonel Ranking

EXPANSION AND PROBLEMS OF THE ROYAL AIR FORCE IN GREAT BRITAIN. Air Commodore Peck

THE FINAL PHASE OF THE MESOPOTAMIA CAMPAIGN — 12TH MARCH 1917 TO THE ARMISTICE. Part III. Lieut.Colonel Shearer

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DIE KRAFTFAHRKAMPFTRUPPE (Germany)

BY CAPTAIN H.N. HARTNESS, Infantry

November 1937

CAMBRAI IN RETROSPECT (20 NOVEMBER 1917).
[Rückblick auf "Cambrai."]

(See digest, page 73)

FURTHER NEWS CONCERNING MOTORIZATION IN FOREIGN ARMIES.
[Immer wieder Neues über die Heeresmotorisierung in fremden Heeren.]

Motorized light infantry division in Japan.—According to "Polska Zbrojna," the Japanese light infantry division, entirely motorized and mechanized, and which is not particularly strong, is intended for reconnaissance and security. It consists of a staff, two infantry regiments, a mechanized regiment and an artillery regiment. In each infantry regiment there are twelve antitank guns. The mechanized regiment consists of a tank battalion, a motorized infantry battalion and a battalion of light infantry. Thirty tanks and twelve armored reconnaissance cars are present in the mechanized regiment. The division consists of about 10,500 men, 1,000 motor vehicles and 50 armored vehicles.

Principles for the employment of mechanized troops in Russia.—According to "Krassnaja Swjesda," the new training regulations, 1937, for Russian mechanized units has recently been published, in which the employment of these units in cooperation with other arms as well as independently, is discussed. Great mobility, fire and shock action and increased radii of action admirably fit these units as powerful attack means. A fundamental principle is the mass employment of tanks. Such a mass attack will be supported artillery, by the air force and exploited by motorized infantry. Its primary mission is the destruction of living opponents, of staffs, of airports and fields, of roads and railroads.

December 1937

TANKS.
[Panzerkampfwagen.]

Armored and motorized units in the Spanish War.—This article is a compilation of various comments on the Spanish situation with a final paragraph written by the editor of "Die Kraftfahrkampftruppe."

According to the "Allgemeine Schweizerische Militärische Zeitung," the Reds in Spain do not have organized motorized units, although all motor vehicles have been seized. Gas and oil have been lacking.

General Fuller has commented as follows on the experiences with motorization and mechanization in Spain: It is entirely wrong to attempt to evaluate the operations in Spain with the standards of measure employed in the World War. Neither side has had at its disposal large organized motorized or mechanized forces. Yet the Reds seem to be better equipped than do the Nationalists. Because of too light armor and armament the light tanks have proved practically worthless. The light tank is no combat weapon; it is a reconnaissance vehicle and as such can, under favorable circumstances, perform excellent service. In fact, the medium tanks have failed to meet expectations in Spain, but it must be said that tank tactics as we conceive them have not been employed. It appears that at no time have more than fifteen tanks been employed as a unit in one area.

General Culman, French Army, reports in "La France Militaire" that the Nationalists employed 200 (?) tanks in the March offensive, in the direction of Guadalajara and that these tanks drove through a distance of 50 kilometers, even against the defender's heavy artillery, but this success could not be exploited because neither infantry nor artillery could follow the tank attack fast enough. General Culman further remarks that the antitank defense showed itself superior. Comment by editor: Superior against a tank mass that penetrated 50 kilometers?

According to an article by General Culman in "Rivista di Artiglieria e Genio," the following kinds of tanks are to be found in Spain:

On the side of the Nationalists:

A light tank with a speed of 50 kilometers per hour, two machine guns, a crew of two men, armor plate of 15-mm, and weight of 6 tons.

The light tank (Fiat Ansaldo): speed, 45 kilometers per hour; crew, 2 men; 1 to 2 machine guns; armor plate of 10-mm; weight, 2 to 3 tons.

On the side of the Reds:

A light tank (T-26; Russian); speed, 30 kilometers per hour; crew, 3 men; one 37-mm or 47-mm cannon and one or two machine guns; armor plate of 13-mm; weight, 8.5 tons; operating range, 150 kilometers.

A medium tank (T-28; Russian); speed, 40 kilometers per hour; crew, 5 to 6 men; one 47-mm cannon and 3 machine guns; armor plate of 25-mm; operating range, 180 kilometers; weight, 18 tons. This tank is similar to the English 18-ton Vickers-Armstrong, but technically it is far from perfect and burns easily.*

"Krassnaja Swjesda" reports that the Nationalists employed some 30 to 40 light tanks in their attack on 27 June along the road: Madrid — Valencia. During this engagement there resulted a tank against tank combat. Twenty medium Red tanks blocked the route and fired upon the Nationalist tanks. The Reds were victorious; the Nationalists had to retire to their initial position. Further details are mission — comment by editor. This report must be accepted skeptically. It is to wonder why, in this success, no report is made of the number of Nationalist tanks destroyed or incapacitated.

The French General Duchene has the following to say in the "Echo de Paris": In the Spanish War tanks are employed to support the infantry, that is, infantry is supported by a weapon which can destroy a concealed enemy and obstacles to the infantry, and thereby open the way for the foot soldier and reduce his losses. But the Spanish War again demonstrates that only well trained, well organized troops of high morale are suitable for the attack, and against such troops an improvised defensive unit hardly suffices.

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*[Apparently this is the tank which flasks of benzine have been used against with some success. — EDITOR'S NOTE]

Liddell Hart's example in "The Times" is interesting in that he states the only successful attack at Santander was achieved by the employment of 200 tanks in the support of five weak Nationalist divisions. Comment: From this action a lesson may be drawn — that tanks will be successful when they are employed in large numbers.

The editor comments: Without critically examining the material, an evaluation of the tactics of light tanks shows that success with them is possible only when they are correctly employed, in large numbers and with surprise. When, as appears to have happened, these light tanks are employed individually or in small numbers and on roads, there is little wonder that they fall as sacrifices to antitank weapons. But the conclusion that light tanks are of no worth, is false.

Russian views concerning the cooperation between tanks and infantry.— Major Kolesnikow treats this subject in "Krassnaja Swjesda." Paragraph 196 of the latest Russian Field Service Regulations states: "As a rule, the time the infantry attack should be launched is that at which the tanks, which are supporting the infantry, approach the forward line of the hostile infantry. At this time the infantry commanders launch their attack." According to Major Kolesnikow this statement is too restrictive, since it does not visualize all situations.

The main task of the infantry is the exploitation of the tank success. This exploitation can only be achieved when the infantry breaks into the hostile line immediately behind the tanks, that is, when the hostile defensive nests have not raised their heads again. Therefore, it is necessary that the line of departure for the attacking infantry lie not closer than 200 yards, nor farther than 300 yards from the hostile line. In such situations, according to the regulations, the infantry can wait until the tanks have broken into the hostile lines. But since the main infantry elements of the attacking force are generally 600 to 800 yards distant from the enemy, it is necessary that these (to satisfy the requirements) work themselves forward prior to the tank attack. However, the location of the line of departure will depend upon the terrain and the hostile fire. The tanks can begin their advance well to the rear and advance through the gaps between the infantry.

Major Kolesnikow goes on to state that an infantry 600 to 800 yards from the enemy cannot exploit the tank attack, if it (the infantry) waits until the tanks have entered the hostile line. The tanks destroy many, but not all, of the hostile machine guns. That part which the tanks do not destroy bob up again — that part which has been well protected. Against machine guns in trenches tanks have little effect.

These machine-gun nests will bob up again because the tank attack must continue. The tanks cannot cruise around the forward hostile position. To do so would mean they would fall prey to the hostile antitank means. In this phase the infantry heavy weapons and the artillery can offer little help to the tanks.

The infantry requires 5 minutes to cover the 600 yards. The defender can permit the tanks to pass on and devote his attention to the infantry. The defender can employ all means of fire-power, which has not been beaten down, against the infantry as soon as it begins to advance. The infantry will find itself under this fire 5 minutes or more. Also, the attacker's artillery cannot be employed against the defender because it will endanger the advancing infantry, the tanks, or both. Therefore, Major Kolesnikow draws the conclusion that at distances greater than 300 yards the infantry and the tanks should begin the advance simultaneously so that the infantry reaches the hostile lines before the enemy is able to resume his defense. By such procedure there is the further advantage that the infantry is able to assist in beating down the hostile antitank weapons.

COMMENT BY EDITOR OF "DIE KRAFTFAHRKAMPFTRUPPE"

The demand that the infantry push into the enemy as near simultaneously with the tanks as possible is correct. But the comments made by Major Kolesnikow do not visualize the tanks attacking in depth. In fact, one wave of tanks follows the other. Therefore the forward hostile elements remain a considerable time under tank pressure and the attacking infantry

in reality has more than 5 minutes to advance the 600 yards. Should an especially brave enemy bob up to combat the approaching infantry, such action would be advantageous for the tanks, since it would provide an additional visible target. Tanks cannot destroy machine guns in trenches, according to Major Kolesnikow. With machine guns this destruction is difficult, but with cannon from which high explosive shells are fired it is not difficult. In fact, the World War demonstrated that an enemy in trenches can be successfully combatted by high explosives.

Czechoslovakian views on antitank defense.—The "Tschechische Militär-Rundschau" treats the subject of antitank defense, especially as applicable to the tasks of artillery in this defense.

It shall be the mission of the artillery to concentrate fire upon the tank assembly areas prior to the attack. The primary mission of the antitank guns (not artillery) is to stop the tank attack in front of the main line of resistance.

Considering that only in exceptional situations will it be possible for the artillery to lay down a barrage heavy enough to destroy the attacking tanks and that the artillery is not sufficiently mobile to be sure of striking fast moving tanks, the primary missions of the artillery in antitank defense are given as follows:

(1) To combat the hostile artillery supporting the tank attack.

(2) To concentrate fire on the hostile tanks in their approach march and in their assembly areas.

(3) To combat the hostile artillery accompanying the tank attack.

(4) To combat the attacking tanks with that artillery still available.

Up to the present in our development the field cannon is inferior to the gun in the tank. Consequently, the special antitank gun is indispensable. An enemy attacking with tanks will always strive to destroy the antitank guns. The field artillery of the defender can therefore be employed effectively in smoking hostile observation and executing counterbattery against the hostile artillery attempting to destroy the antitank weapons. To be sure, field artillery can destroy hostile tanks by direct fire, but because of the numerous other artillery missions, it cannot be employed against tanks in sufficient mass to assure success. The editor comments: Based on the considerations he evalues, the author concludes that against a tank attack the most effective and dangerous weapon to employ against tanks is the antitank gun. The artillery will have sufficient missions other than the immediate combatting of tanks, and if the artillery successfully accomplished these missions it will materially assist the antitank defense.

This article is worthy of consideration. It lays down the missions suitable for artillery in antitank defense, and so employed will often contribute greatly to lessening the effectiveness of a tank attack.

January 1938

MOTORIZATION OF THE ARMS.
[Die Motorisierung der Waffen.]

New guns for the Italian mountain artillery.—According to press reports the Italian mountain artillery regiments have been equipped with the new 75-mm mountain howitzer, L 18 Ansaldo. This weapon is borne in individual loads by seven mules or horses or is drawn by trucks.

Japanese light infantry for reconnaissance and security.—The Japanese light infantry divisions for reconnaissance and security consist of two infantry regiments, a mechanized regiment and an artillery regiment. Each infantry regiment consists of three battalions, each of three rifle companies and one machine-gun company. The regiment has a strength of 2,080 officers and men, 1,600 automatic rifles, 48 heavy machine guns, 12 antitank machine guns and 6 mortars (81-mm). The infantry regiment is transported by trucks. The mechanized infantry regiment consists of a tank battalion, a motorized battalion and a light infantry battalion. This regiment has a strength of 1,680 officers and men, 30 tanks, 12 reconnaissance cars, 4 mortars. The artillery regiment consists of three battalions, each of three

batteries. Total strength of the division: 10,500 officers and men, 1,000 trucks, 50 armored vehicles.

Experiences with the English Mechanized Cavalry Brigade.—The Mechanized Cavalry Brigade, organized as such during 1937, consists of two light tank regiments and a motorized infantry battalion. According to official reports the motorized battalion should be employed as division troops, since its incorporation within the brigade only burdens the brigade. It also is better to provide the brigade with three tank regiments, since it is easier and more satisfactory to employ a triangle formation. Each tank regiment consists of three squadrons, each squadron of three platoons, each platoon of five tanks and two unarmored transport vehicles; on each of these unarmored transport vehicles a crew of one noncommissioned officer and four men, with one antitank gun and one light machine gun. These troops have proved most valuable in executing and covering obstacles and road blocks. They were often organized as a fourth platoon in each squadron and sometimes organized into a fourth squadron by the regiment. Such an organization was disadvantageous in that the unit had no radio means of communication. But such a disadvantage can be easily remedied.

In all the exercises of the cavalry brigade the superiority of its marching speed over that of horse cavalry was demonstrated. But there was also evident a lack of flexibility, and difficulties were encountered in negotiating terrain which was covered or partly covered.

However, the difficulties encountered may be traceable largely to the leadership. When the modern means of war are employed in exercises or maneuvers, the commanders and troops must be trained thoroughly; there must be a rapidity of decision and action based upon full appreciation of the terrain. Where the commanders are thoroughly schooled in this rapidity of conduct the mechanized cavalry can be employed to the same advantage, comparing the locomotion of both, as formerly horse cavalry was employed. The commander must think of the employment at speeds from 9 to 25 miles per hour, rather than at 3 to 6 miles per hour. All of this is a matter of training and experience. He must exert his iron will to overcome seeming difficulties.

February 1938

THE MOTORIZED AUSTRIAN TROOPS (AS OF 1 NOVEMBER 1937).
[Die motorisierten Truppen Osterreichs (Stand vom 1. 11, 1937).]

(1) The rapid division:

Headquarters
Motorized jäger (infantry) brigade
Dragoon brigade (mounted)
Artillery regiment
Infantry cannon battalion
Tank battalion
Motorized telegraph (signal) battalion
Motorized engineer company.

The motorized jäger (infantry) brigade consists of four motorized battalions.

Each battalion consists of:

Headquarters (staff and motorcycle platoon)
Headquarters company (3 47-mm infantry cannon and 3 20-mm antitank weapons; a mortar platoon with 3 80-mm mortars; an engineer platoon; signal platoon; and staff platoon)
Two rifle companies, each with a staff platoon and three rifle platoons
One machine-gun company (staff platoon and four machine-gun platoons).

Each battalion is fully motorized, each vehicle's crew and load is in inself a small tactical unit.

Total number of vehicles:

43 cross-country trucks
3 tanks
10 transport trucks
23 motorcycles.

The light artillery regiment, fully motorized, consists of a sound and flash battalion and two artillery battalions with a total of 2 80-mm field cannon batteries and 2 100-mm field howitzer batteries.

The infantry cannon battalion consists of two companies, each with 8 47-mm cannons, entirely motorized.

The tank battalion comprises:

Battalion staff
Command company (antitank platoon, machine-gun platoon, engineer platoon, signal platoon, staff group)
Four tank companies, each with a staff group and 3 platoons. (The companies are provided with Fiat Ansaldo M 1933 small tanks, each armed with the Austrian 8-mm M 7/12 heavy machine gun.)
A supporting company (staff group and three platoons), equipped with 12-ton, 8-wheeled vehicles, a combination tank and wrecker.

The signal battalion, consisting of a telegraph company and a radio company, is wholly motorized.

The motorized engineer company (3 platoons) is trained primarily for obstacle work.

(2) Motorized units in the infantry division:

In each infantry regiment: a motorized transport unit and a motorized machine-gun company (Austro-Daimler motor cars)
In each artillery regiment: elements of the regimental staff, the sound and flash battalion and the second battalion.
The infantry cannon battalion
In each engineer and signal battalion motor elements designed for special purposes.
The division motor transport unit which consists of headquarters, headquarters section, four platoons of trucks, a repair shop and a training platoon.

(3) Army units:

The independent artillery regiment is fully motorized and consists of: sound and flash battalion and three battalions, each of three batteries (150-mm and heavier).

(4) Antiaircraft units:

All fully motorized.
The two antiaircraft machine cannon battalions each consist of three companies, one equipped with 20-mm, two with 40-mm machine cannons.
The 40-mm machine cannon has the following characteristics:
Designation: 4-cm M 36 antiaircraft machine cannon
Weight: 4,400 pounds
Caliber: 40-mm
Length of barrel: 5 feet?
Weight of explosive projectile: 2 pounds
Muzzle velocity: about 2,900 feet per second
Horizontal range: about 10,000 yards
Vertical range: about 6,500 yards
Tracer visibility: about 5,000 yards
Theoretical rate of fire: 120 rounds per minute.
The 47-mm M 35 infantry cannon:
This weapon is horse-drawn in the battalion, motorized in the regiment. Each battalion has one platoon, each regiment one battalion, two companies of 4 cannon each.

Its characteristics are:

Weight: about 700 pounds
Range: about 10,000 yards
Muzzle velocity: about 2,100 feet per second
Weight of projectile: 3.2 pounds

Employment:

As antitank weapon during rests, at night, beginning of the march, and security of the march by covering routes leading into the route of march. During an attack employed as supporting weapon; during defense to combat tanks, to fire upon defiladed searchlights, machine guns and cannon.

ENGINEERS IN THE ITALIAN LIGHT DIVISION.
[Pioniere bei der italienischen leichten Division.]

The tasks of the engineers with the Italian light division are:

To repair and construct roadways
To repair and construct bridges.

The personnel for these units is especially selected.
The equipment is as follows:

(1) Light bridge Number 2.—This 90 foot bridge is laid on strong floating supports, placed 12 to 15 feet apart. The bridge will support cavalrymen, motorcycles and the motor vehicles of the combat elements.
(2) Bridge Number 0, constructed by employing pontons and balks and chests. This bridge will support the heavy supply vehicles of the division.

Additional equipment lately added to the light Italian division:

(1) Motorized radio units: Type RF&C, for communicating with higher commanders. Transmissions: 50 kilometers by telegraph; 30 kilometers by telephone communication.
(2) Infra-red ray blinker units.
(3) Searchlights with a 120-cm diameter.
(4) Motorized revolving platforms, with ramps, to permit turning of vehicles on narrow roads.

MARINE CORPS GAZETTE

March 1938

WHAT WOULD JAPANESE VICTORY IN CHINA MEAN TO AMERICA?
CAN THE ATTACK FROM THE AIR BE STOPPED? Captain Pefley
LANDING STUDIES. Captain Kenyon
THE STRUGGLE FOR POWER IN THE MEDITERRANEAN
A WAR OF MOVEMENT — SOME FACTORS FOR CONSIDERATION. Captain Andrews

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MILITARWISSENSCHAFTLICHE MITTEILUNGEN (Austria)

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

October 1937

CHANGES IN MOUNTAIN WARFARE.
[Wandlungen im Gebirgskrieg.] (I) Colonel v.Wittich

A discussion of the changes introduced in mountain warfare since the Thirty Years' War.

Napoleon believed that a strong mountainous position should not be taken by frontal attacks, that by threatening the enemy's flank or rear the enemy could be compelled to give up his position without fighting. On the other hand, the Archduke Charles, one of Napoleon's opponents during the Napoleonic Wars, maintained that in mountain warfare the attacking force had the advantage over the defending force. In the defensive, the forces may become overextended and thus be exposed to great danger. Clausewitz shared those views to some extent.

PANICS AND HOW TO AVOID THEM.
[Paniken und ihre Vermeidung.] (I) Lieutenant Epp

The author cites a number of historical examples of panics during the World War. Panics may occur due to several causes, and they take place, in general, chiefly at night, in dense woods, fogs, and usually when the danger cannot be seen. The most frequent psychological moment seems to be when troops are hungry or exhausted after a long day's march or after a hard fought battle. Mass psychology does not reason. A panic may be stopped by a commander's example; however, after a body of men become panicky, nothing stops them except complete exhaustion or an impassable obstacle, such as a river. Panicky troops are capable of greater efforts than under ordinary conditions and history shows that in some cases they have covered almost unbelievable distances. The impressions from the first battle are everlasting and if the first battle has been a panicky retreat, the danger of a recurring panic will always exist.

Some panics, as the author shows by examples, have been controlled by efficient and capable leadership; in some instances, troops have fired into their own men and caused considerable casualties, and in other cases, panics caused great disasters.

THE COLONIAL POLICY OF THE GERMAN REICH.
[Die Kolonialpolitik des Deutschen Reiches.] Captain Sokol

In 1884, Germany acquired German Southwest Africa, Togo and New Guinea, thus becoming a colonial empire. Continuing its expansion of territory, she acquired a portion of the Cameroons in 1911, by agreement with France. As a result of the Treaty of Versailles, Germany renounced all claims to her territories and her colonies were divided among Great Britain, France and Japan.

The author maintains that her colonies should be restored to Germany, and discusses the German, British and French points of view.

Italy has conquered Abyssinia and now sides with Germany. Great Britain is aware of Germany's colonial aspirations, and must choose between the restoration of these colonies or risk the possibilities of an armed conflict. Germany must look for Allies, and according to Captain Sokol, she may find it necessary to form an alliance with Russia, although this step may seem rather strange under present conditions.

THE SPANISH CIVIL WAR.
[Der Bürgerkrieg in Spanien.] General Wiesinger

The fifth article on the above subject deals with the period ending 15 September 1937. During this time the Insurgents launched their campaign against Santander, and advanced on Gijon, which was captured in October. The author believes that the Insurgents will win the war.

EMPLOYMENT OF THE AIR ARM IN NAVAL WARFARE.
[Zur Verwendung der Flugwaffe im Seekriege.] R. Landy

The sinking of the Spanish cruiser "Espana" has led to the erroneous belief on the part of some people that the days of the big battleship are over.

A battleship presents a difficult target to a fast moving bomber and, even if a hit is scored, the damage done to the thick armor is not serious. In addition, the escort of destroyers accompanying the battleship will compel hostile bombing aircraft to stay away.

On the contrary, troop ships whether sailing alone or in convoy are greatly exposed to hostile aircraft, and even though armed with antiaircraft guns, it would be very difficult if not impossible to beat off a mass air attack.

November 1937

TWENTY YEARS AGO: CAPORETTO, 1937.
[Vor zwanzig Jahren: Karfreit 1917.] Major Heydendorff

A brief discussion of the battle of Caporetto, the smashing defeat inflicted on the Italian forces by the Austro-Hungarian Army, supported by the German Fourteenth Army.

CHANGES IN MOUNTAIN WARFARE.
[Wandlungen im Gebirgskrieg.] (II) Colonel v.Wittich

In this concluding instalment, Colonel v.Wittich states that before the World War it was believed that a mountainous terrain was unsuitable for war operations on a large scale. However, the campaigns in Italy, in the Balkans, the Carpathians, Transylvania and even in parts of France brought about a complete change in these views.

The author believes that the Central Powers should have exploited more fully their successes in Serbia in 1914, in Macedonia in 1915 and 1916, and in Italy in 1917, instead of considering the Western Front as the main theater of operations. As it will be recalled, the campaigns in Asia and Africa were considered as "side shows."

In speaking of the future, Colonel v.Wittich maintains that in mountain warfare an air force will only play a secondary role, tanks will be practically useless, gas will be less effective than in the plains, while the role of the artillery in support of the infantry will be more important than ever.

PANICS AND HOW TO AVOID THEM.
[Paniken und ihre Vermeidung.] (II) Lieutenant Epp

THE CONFLICT IN THE FAR EAST.
[Der Konflikt in Ostasien.] General Wiesinger

An account of the events of this war to include 30 September 1937. After the Japanese defeated the Chinese south of Peiping, the latter fell to a second defensive position about 150 miles to the south. In the fight for possession of Shanghai, Wusung was finally captured on 7 September.

As a matter of fact, fighting had been going on in the Far East since 1931, when Japan annexed Manchukuo and later on added to it the province of Jehol. The puppet state of Manchukuo is the gateway of China's five northern provinces, rich in iron, coal, oil-shales, timber, and other products which Japan needs.

December 1937

THE CROSSING OF THE ANDES IN 1817.
[Der Andenübergang "El Paso de Los Andes" im Jahre 1817.] General Knaus

The crossing of the Andes by General San Martin in 1817, deserves special study by military students and is comparable to the crossings of the Alps by Hannibal and Napoleon in 218 B.C. and A.D. 1796, respectively.

General San Martin with an army composed of Chileans and Argentineans assembled his forces in the province of Cuyo, prior to the invasion

of Chile. His army, divided in two columns, started on its mission of invasion about the middle of January 1817. The main column commanded by San Martin himself, with O'Higgins in command of the main body, crossed the Andes north of Mount Aconcagua; the southern column crossed south of Aconcagua, the two columns uniting near the town of Los Andes. The troops met little opposition, but experienced considerable suffering from a form of mountain sickness and lost a large number of horses. On 12 February, San Martin met and defeated the Spanish army at Chacabuco, and two days later made his triumphal entry in Santiago. The Spaniards retreated to Valparaiso. An excellent map accompanies this article.

THE WAR OF TOMORROW: A TOTAL WAR.
[Der Totale Krieg. Der Umfang eines Krieges von morgen.] Lieut. Colonel Ringel

In the next war, the entire population will participate, and there will be little distinction between soldiers at the front and the civilians working in rear areas. Propaganda will be intensified by the use of radio, which materially assisted the Italians to win their war in Abyssinia. Not only munition factories, but the entire nation will be subjected to air attacks. The protection against hostile aircraft becomes, therefore, very important and it presents a very difficult problem for a small country.

The author also deals with the organization of industry for war and discusses the various factors such as allotment of man-power for front-line defense and for home defense; financial resources; study and research of armament and equipment; food supply, accumulation of raw materials, trade and antiaircraft defense.

ORGANIZATION OF ENGINEERS.
[Pionierorganisation.] Colonel Janowski

The tasks allotted to engineers in time of war are so varied and complicated that specialization becomes necessary.

For an engineer battalion the author recommends that during the first year, the first three months be designated for military and general training, and during the remainder of the year half of the men of the battalion be given general engineer training, while the other half receives specialist's training, the process to be revised during the second year. The recommended organization of an engineer battalion is a headquarters company and three other companies, one of which should be motorized.

MILITAR-WOCHENBLATT (Germany)

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

29 October 1937

THE WAR OF ALLIANCES. MILITARY-POLITICAL STUDY OF THE WORLD WAR.
[Der Bündniskrieg. Eine militärpolitisch operative Studie des Weltkrieges.] General Wetzell

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COMMENTS ON THE SPIRIT OF SELF-SACRIFICE OF LEADERS IN WAR.
[Gedanken über Selbstlosigkeit der Führer im Krieg.] Colonel v.Mantey

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THE EFFICIENCY OF ANTIAIRCRAFT ARMS DURING THE WORLD WAR.
[Die Leistungen der Flakwaffe im Weltkrieg.] General Grimme

PRACTICAL DEFENSE AGAINST TANKS.
[Panzerabwehr in der Praxis.]

COMMENTS ON THE "REASON OF REASONS."
[Gedanken zu "Der Grund aller Gründe."] Lieutenant Kallhardt
The feeding of German troops during the World War.

THE CHEMICAL WARFARE SERVICE SCHOOL, U.S. ARMY.
[Die amerikanische "Schule für chemische Kriegführung."]

HUNGARIAN THOUGHTS ON THE EMPLOYMENT OF TANKS.
[Ungarische Ansichten über Verwendung von Kleinkampfwagen.]

5 November 1937

UNITY OF COMMAND.
[Einheitlicher Oberbefehl.] Lieut.General v.Urbanski

FOREIGN OPINION ON THE GERMAN RAILWAY ORGANIZATION FOR TRANSPORTATION OF TROOPS AND WAR MATERIAL IN 1914.
[Der deutsche Eisenbahnaufmarsch 1914 — von drauszen gesehen.] Oskar Dost

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MEMOIRS OF A SINCERE SOLDIER.
[Erinnerungen eines freimütigen Soldaten.] General v.Eimannsberger

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PROFESSIONAL MILITARY EDUCATION.
[Militärische Berufserziehung.] Lieut.Colonel Mahlmann
A discussion of the reorganization of professional education in Germany, under Dr. Ley, Chief of the Reich Organization, pointing out the advantages that will accrue the officers and the service at large.

THE RAPID PROGRESS OF GERMAN AVIATION IN 1937.
[Der grosze Fortschritt der deutschen Luftwaffe 1937.] Lieutenant Feuchter

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ARMORED TRAINS.
[Panzerzüge.]

THE STUDY OF MILITARY SCIENCE IN CZECHOSLOVAKIA.
[Die Pflege der Wehrwissenschaften in der Tschechoslowakei.] By Ek.

12 November 1937

FRENCH HIGH COMMANDERS ON THE "ATTAQUE BRUSQUÉE" TODAY AND IN 1941.
[Frankreichs oberste Militärleiter über "attaque brusquée" heute und 1941.] Kurt Bronk
Recent publications by Generals Weygand, Debeney and Duchêne.

INFANTRY LOSSES IN THE FIRST BATTLES OF 1870 AND 1914.
[Die Verluste der Infanterie in den Erstschlachten 1870 und 1914.] Lieut.General Marx

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BRITISH AIRPLANES.
[Flugzeuge der englischen Luftwaffe.]

19 November 1937

THE BREAKTHROUGH.
[Der Durchbruch.] (I) Lieut.General Marx

THOUGHTS ABOUT UMPIRING.
[Gedanken über Schiedsrichterdienst.] Colonel Plewig

THE FRENCH MANEUVERS IN NORMANDY.
[Die groszen französischen Manöver in der Normandie.]

THE WAR IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

26 November 1937

THE WILL OF THE LEADER AND FREEDOM OF ACTION OF HIS SUBORDINATES.
[Führerwille und Selbständigkeit der Unterführer.] Lieut.Colonel Müller-Loebnitz

This is the first of a series of articles entitled: "Responsibility in War." A number of interesting historical examples are presented, dealing with the will and orders of the commander in chief of the army, their interpretation by unit commanders and subordinate leaders and the consequences of the execution of these orders.

ENGINEERS IN HIGH MOUNTAINS; TYPE, SERVICE AND SUPPLIES OF A MOUNTAIN ENGINEER BATTALION.
[Pioniere im Hochgebirge. Wesen, Dienst und Ausrüstung eines Geb. Pi. Btl.] Lieutenant v.Bimbach

After discussing the subject, the author concludes that mountain engineers have two missions: one to create difficulties to the enemy and the other to assist their own forces.

ANTITANK DEFENSE.
[Der Kampf gegen Panzerwagen.] Baron v.Maydell

The difficulties and natural obstructions of the terrain should be fully exploited, making the terrain inaccessible to tanks. Then follows a discussion of the importance of camouflage, combat between tanks, antitank artillery, and infantry attacks against tanks. The author's conclusions are that the antitank mine is the best defensive weapon against tanks.

3 December 1937

THE GERMAN BREAKTHROUGH OF 1918.
[Das Durchbruchsproblem, 1918.] (II) General Wetzell

A review of the book entitled "The Breakthrough," written by General von Dellmensingen in which v.Ludendorff is severely criticized as Chief of Staff of the German Army. General Wetzell comes to the defense of Luden-

dorff, stating that before passing judgment in the matter, both Ludendorff's successes and mistakes should be considered and impartially analyzed, deducting therefrom the true factors that were responsible for the failure of the attempted German breakthrough in the Western Front in 1918.

10 December 1937

THE GERMAN BREAKTHROUGH OF 1918.
[Das Durchbruchsproblem 1918.] (III) General Wetzell

In the preceding instalment, the author emphasized the difference between the ideas of Generals Ludendorff and von Krafft.

Ludendorff believed that the "Michael" attack along a 40-mile front and strongly supported by artillery, offered more possibilities of success. On the other hand, von Krafft favored the attack "Michael and Mars," along both sides of the Scarpe on a front of approximately 56 miles. This last plan would have required another army, for the organization of which Germany lacked infantry and, especially, artillery.

The German General Staff studied three possible offensives on the British front:

(a) At Hazebrouck (so-called "St. Georg").
(b) On both sides of the Scarpe (so-called "Mars").
(c) At St. Quentin (so-called "Michael").

The General Staff did not favor the "Mars" plan, so well liked by General v.Krafft, because the offensive was to be directed against a strongly defended position, well organized in depth, and moreover, the Germans had lost the heights of Loretto, Vimy and Mouchy.

By the latter part of January 1918, the Fourteenth Army (later on called the Seventeenth) was assigned to this front, while the Eighteenth Army had been brought in between the Second and Sixth Armies, so that, for the "Michael" offensive, the front had to be assigned to the Seventeenth (formerly the Fourteenth), the Second and Eighteenth Armies.

In accordance with General Orders dated 14 January and 8 February 1918, the attack was to be launched with the line: La Fere — Ham — Peronne as immediate objective, advancing south of the Scarpe towards the line: Peronne — Arras.

The success of the Eighteenth Army, which not only drove back the enemy, but also assisted the attack of the Second and Seventeenth Armies, proves that Ludendorff's tactical conception of the breakthrough was correct.

THE SUPREME COMMAND IN A WAR OF ALLIANCES.
[Der "Einheitliche Oberbefehl" im Bündniskrieg.] General Liebmann

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THE HUNGARIAN MANEUVERS, AUTUMN 1937.
[Die groszen ungarischen Herbstmanöver.]

FLEXIBLE PONTOONS FOR RIVER CROSSINGS ACCORDING TO STRAUSSLER.
[Das englische Klappbott-Brückengerät nach Strauszler.] Colonel Blümner

17 December 1937

THOUGHTS ABOUT TERRAIN AND COMBAT RECONNAISSANCE BEFORE A TANK ATTACK.
[Gedanken über Geländeerkundung und Feindaufklärung vor einem Kampfwagenangriff.]

A CONTRIBUTION TO THE QUESTION OF OUR INFANTRY LOSSES IN THE EARLY BATTLES OF 1870 AND 1914.
[Beitrag zur Frage der Verluste unserer Infanterie in den Erstschlachten 1870 und 1914.] Colonel v.Loebell

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MANEUVERS IN THE BALKANS AND IN ANATOLIA, 1937.
[Manöver auf dem Balkan und in Anatolien 1937.]

THE RUSSIAN FIELD SERVICE REGULATIONS.
[Die russische Felddienstordnung.]

24 December 1937

THE PILLARS OF THE ARMY (THE GENERALS).
["Die Säulen des Heeres."] Lieut.General Marx

LESSONS FROM THE WORLD WAR. FROM A WAR DIARY.
[Der Weltkrieg als Lehrmeister.] Captain Hentschel

TANK ATTACKS.
[Panzerangriff — Panzerabwehr.] Captain Gotzmann

DIFFICULTIES OF PROTECTING THE BRITISH COMMERCIAL SEAGOING TRAFFIC.
[Britische Handelsschutznöte.] Captain Waldeyer-Hartz, German Navy

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THE FAR EAST CONFLICT: THE CAPTURE OF NANKING.
[Vom Konflikt im Fernen Osten. XIV. Der Kampf um Nanking.] Colonel v.Xylander

31 December 1937

THE ARMY IN 1937.
[Das Heer im Jahre 1937.]

The organization of modern armies includes special ground reconnaissance forces composed of motorized, mounted or cyclist units. Their principal mission is reconnaissance and their combat training is limited to that necessary to carry out their reconnaissance mission. The author believes that the organization of these special units is a mistake; he maintains that cavalry and fast motorized units should return to their organization after their reconnaissance mission has been fulfilled with a view to participating in combat with the main forces.

THE EMPLOYMENT OF TANKS FROM THE ANTITANK GUNNER'S POINT OF VIEW.
["Panzereinsatz," durchs Zielfernrohr des Abwehrschützen gesehen.]

The author agrees with General v.Eimannsberger that the employment of large masses of tanks in successive waves, with fire protection, is extremely difficult to stop, because tanks offer a small target, moving so speedily that it is practically impossible for the antitank gunner to move his gun fast enough and aim accurately at the same time. The antitank gunner should aim only at the tank which is advancing toward him. Other tanks advancing in other directions should be left alone, to be taken under fire by other

antitank guns in rear. This method presupposes that the defender has echeloned his antitank defense in depth, and that the rear pieces will be able to handle those enemy tanks that have succeeded in getting by the forward echelon of antitank guns. The success of these tactics depends upon the efficiency of the projectiles and, above all, on the numerical ratio between tanks and antitank guns. This system of antitank defense will prevent a breakthrough and for this reason the infantry should be provided with modern automatic armor-piercing arms.

THE SPANISH WAR.
[Vom spanischen Krieg.] Colonel v.Xylander

THE WORLD WAR FROM THE ECONOMIC POINT OF VIEW.
[Weltkrieg und Weltwirtschaft.] Dr. Gumpert

7 January 1938

THE WAR OF ALLIANCES.
["Der Bündniskrieg" und die Kritik.] (I) General Wetzell

SPIRITUAL INFLUENCES IN WAR.
[Die seelischen Einflüsse im Kriege.]

REMARKS ON THE TACTICS OF 1914.
[Klärung.] Lieut.General Marx

LESSONS FROM A MECHANIZED ARMY.
[Auszug aus Bericht des Militärkorrespondenten General Temperley: "Lessons from a mechanised army at rehearsal."]

An abstract of a report by General Temperley.

The British maneuvers in 1937 are of special interest because of the participation of an army completely mechanized. General Temperley believes that the vulnerability of long columns has not been properly considered and that the trees that are always found at both sides of roads in England offer a much better camouflage than would be found in other theaters of war. Moreover, outside of Great Britain, it would be hard to find available one highway for each brigade! Embarkation and debarkation points are particularly vulnerable places.

Tanks will not be able to carry out their missions due to the development of antitank weapons. On the other hand, it is doubtful whether an attack against a fortified position can succeed, unless supported by armored vehicles or smoke screeens.

Light tank losses must be decreased by using smoke screens and special accompanying artillery. The mechanized units (divisional cavalry and machine-gun battalions) showed their effectiveness in delaying actions. The use of motorized infantry was too frequent, motors travelling to the front lines without paying any attention to the enemy's fire.

The artillery did well, except that it consumed excessive time in preliminaries, probably a legacy of position warfare.

The strength of units was pitiful; there were battalions with a strength of but 200 men, while the two Aldershot divisions only had 6,000 men instead of 20,000!

THE WAR IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

The fall of Nanking and the general situation before Christmas.

TACTICAL PROBLEM NO. 5.
[Truppenführung. Aufgabe 5: Taktik.]

14 January 1938

THE TANK PROBLEM.
[Das Panzerproblem.] General v.Eimmannsberger

THE WAR OF ALLIANCES.
["Der Bündniskrieg" und die Kritik.] (II) General Wetzell

THE SPANISH WAR.
[Vom spanischen Krieg.] Colonel v.Xylander

REPLACEMENT OF RECRUITS.
[Rekrutenersatz vom Lande.] Captain v.Plate

TACTICAL PROBLEM NO. 5.
[Truppenführung. Aufgabe 5: Taktik.]

21 January 1938

SYSTEM OF ANTITANK DEFENSE.
["System" der Panzerabwehr.] (I) Captain Kormann

CONCERNING RESPONSIBILITY IN WAR.
[Uber Verantwortlichkeit im Kriege.]

EXTENT AND PROBLEMS OF BRITISH REARMAMENT.
[Umfang und Probleme der britischen Rüstungen.] Karl Kraus

SPECIAL TYPE TANKS.
[Sonder-Panzerkampfwagen.]

TACTICAL PROBLEM NO. 6.
[Truppenführung. Aufgabe 6: (Taktik — Rgt.-Verband).

28 January 1938

BRAVERY OF THE FRENCH SOLDIER AND THE POLICY OF REVENGE.
[Der französische Soldat und die Revanchepolitik.] Lieut.General v.Urbanski

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A SYSTEM OF ANTITANK DEFENSE.
["System" der Panzerabwehr.] (II) Captain Kormann

SECURITY AND EXPLOITATION IN COMBAT IN G.H.Q. ANTITANK UNITS.
[Sicherung und Gefechtsaufklärung bei Panzer-Abwehrverbänden der oberen Führung.] Colonel v.Zanthier

THE WAR IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

TACTICAL PROBLEM NO. 6.
[Truppenführung. Aufgabe 6: (Taktik — Rgt.-Verband).

MILITARY ENGINEER

March-April 1938

ARMS FOR THE "COCKPIT OF EUROPE." Julian S. Bach, Jr., Assistant Foreign Editor, "The Literary Digest"
THE NATURE OF LEADERSHIP. Colonel Bond
MILITARY RAILWAY EQUIPMENT. J.W. Marsh
THE BATTLE OF CTESIPHON AND THE RETREAT TO KUT. (II) Major Reynolds, British Army
MOTORIZATION IN THE ENGINEERS. Lieut.Colonel Herman
STRATEGIC MINERAL SUPPLIES. 13. ALUMINUM. Major Roush

May-June 1938

EUROPE THROUGH BRITISH EYES. Major Reynolds, British Army
THE GERMAN-AUSTRIAN ANSCHLUSS, FROM THE STANDPOINT OF STRATEGIC MINERAL RESOURCES. Major Roush
ANTIAIRCRAFT DEFENSE AND MATÉRIEL. Major Gerhardt
STRATEGIC MINERAL SUPPLIES. 13. ALUMINUM. Major Roush

MILITARY SURGEON

March 1938

HOSPITAL SHIPS OF THE WORLD WAR: LESSONS TO BE LEARNED FROM THEM. Captain Johnson, M.C., U.S. Navy
THE ITALIAN MEDICAL SERVICE DURING THE CAMPAIGN IN ETHIOPIA. Major Huard, Italian Army (Translated by Colonel H.W. Jones, M.C., U.S. Army)

NAVAL INSTITUTE PROCEEDINGS

March 1938

XENOPHON'S IDEAS OF LEADERSHIP. Lieutenant Howland, USMC-Res
SPIRIT OF THE OFFENSIVE. Captain Wygant
BILLIONS FOR PHILIPPINE INDEPENDENCE. Rear Admiral Phelps

April 1938

A MERCHANT MARINE POLICY. Merrill
TRANSATLANTIC AVIATION AS AN ADJUNCT TO MERCHANT SHIPPING. Coverdale

May 1938

THE CAPTURE AND DESTRUCTION OF THE BARRIER FORTS. Major Colvocoresses
NAVAL AVIATION AND THE NUMBERS RACKET. Lieutenant Custer

PIONIERE (Germany)

By Major E.M. Benitez, Coast Artillery Corps

November 1937

My duties as Chief of Engineers and as Inspector General of Fortifications.
[Meine Tätigkeit als Chef des Ingenieur- und Pionierkorps und General-Inspekteur der Festungen sowie als General vom Ingenieur- und Pionierkorps in Groszen Hauptquartier.] General von Claer

An account of the activities of this officer, written by himself, while performing the duties required by that high command.

Ferrying and bridging equipment for mountain engineers.
[Ubersetz- und Brückengeräte für Gebirgs-Pioniere.] Major Geiger

A discussion of the best kind of bridging equipment for mountain engineers. In the mountains, near the headwaters of rivers, the streams are of varying depth with a swift current. The loads that bridges will be required to carry are laden pack animals and two-wheeled mountain carts, which, altogether, will not exceed one ton. Field wagons, weighing from two to three tons and in special cases, partly motorized units with total loads not exceeding eight tons, may have to be transported. Therefore, the bridging materials required should comprise light floating equipment suitable for strong currents, light trestle bridges to carry infantry across mountain streams, trestle or suspension bridges (2-3 tons) to carry draft animals and heavier bridges (3-8 tons) to motorized units.

For crossing mountain streams, it is necessary to have anchorage cables, special chains to take the place of anchors, waterproof clothing for work in the water and special ferrying cables.

Obstacles in delaying actions.
[Die Sperre als Kampfmittel beim hinhaltenden Widerstand.] Lieutenant Koller-Kraus

The term obstacles includes demolitions, mines (both dummy and real), traps and any other natural or artificial obstructions.

Obstacles immediately in front of the main line of resistance must be able to stop the enemy advance before the withdrawal of the defending force, and must be covered by the fire of the weapons in the main line of resistance. Obstacles covering gaps must be also covered by fire, particularly in those places where the artillery fire can have no effect. In the interval between positions, the engineers must erect obstacles that will stop cavalry and motorized units, after the infantry has forced its way through. Mines are useful obstructions.

Obstacles in winter.
[Sperren im Winter.] Captain Blumenthal

Wintry weather has considerable influence on the problem of stopping an enemy's advance by means of obstacles and demolitions. Three weather conditions should be considered: light freezing temperatures; heavy freezing weather but no snow; and heavy freezing weather with heavy snowfall.

In heavy freezing weather, marshes and rivers present no obstacles to an enemy's advance, while the hardness of the ground make it very difficult to lay mines or erect wire entanglements. Concealment of obstructions is very difficult. Demolitions of bridges will not be so effective, but they must not be neglected. In severe weather, enemy troops will be billeted in houses, therefore buildings likely to be occupied by the enemy should be mined.

THE SECRET OF ROAD CONSTRUCTION IN ABYSSINIA.
[Das Geheimnis des Straszenbaus in Abessinien.] Major Strohl

The Italians built many miles of temporary roads in Abyssinia. They were built with very simple tools, such as picks, shovels, crowbars, sledge hammers and a large quantity of explosives. No mechanical dredges were used.

The regular engineer units at the front first selected the route and made a passable track, which was merely a fair-weather surface road following the native tracks in many places; then followed the "centurion" battalions who widened the road to about eight feet, laid down a coat of rock, if there was any handy, smoothed the surface (not rolled) and provided simple drainage. Altogether, 890 miles of these temporary roads were built.

Permanent roads followed the temporary roads in places, sometimes the directions were changed. These roads were fully bridged, surfaced with bitumin-sprayed metal and well drained. A total of 540 miles of permanent roads were constructed.

SUGGESTIONS FOR TRAINING IN RIFLE PRACTICE.
[Ratschläge für die Schieszausbildung mit Gewehr.] Captain Meltzer

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PRECAUTIONS AGAINST MINES, AND WATER SUPPLY IN THE CARPATHIANS IN 1917.
[Minierschutz und Trinkwasserversorgung im Karpathenkorps 1917.] Professor Scupin

The author was a geological expert in the Carpathians. After the disastrous mine explosion in the Wytschaete salient, all corps were required to get technical advice concerning the danger of mine explosions. Speaking from his own experience, Professor Scupin found that, due to conditions of the soil, the German position was safe against mining.

Referring to water supply, it is said that in the Bukovina the Russians had poisoned the wells by throwing in the dead bodies of cattle. However, a site for a borehole was found, which yielded pure water, free from contamination.

VIBRO-CONCRETE IN THE CONSTRUCTION OF FORTIFICATIONS.
[Rüttelbeton im Festungsbau?] Inspector Molt

An over-wet mixture of concrete is easier to pour and fills the interstices between the rods of the steel reinforcements more effectually. However, upon drying, air replaces the space occupied by water, and the concrete is thus weakened. Shaking the concrete in position by means of an electric drive, which is applied for one to three minutes, eliminates these air pockets. American experiments show a decrease of 17 per cent in air spaces and an increase of 200 per cent in compressive strength, as compared with concrete mixed in the ordinary way.

QUARTERMASTER REVIEW

March-April 1938

SHERMAN — FIRST MODERN SOLDIER. Major Yenchar
BACKGROUND OF HAWAIIAN ANNEXATION. Judge Robertson

RESERVE OFFICER

April 1938

ROLLING ARMORED FIRE POWER. Major Fleming

REVUE D'ARTILLERIE (France)

BY MAJOR B.R. LEGGE, Infantry

October 1937

ARTILLERY AT THE SIEGE OF CONSTANTINE, OCTOBER 1837.
[Il y a cent ans: l'artillerie au siège de Constantine.]

The capture of Constantine by the French Army of Africa, a hundred years ago, was an important step in the conquest of Algeria. It marked the end of Turkish resistance. Artillery played there a predominant role, and that operation, which was crowned with success, although viewed in advance with many apprehensions, brought the baton of a Marshal of France to a great artilleryman, General Valée.

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THE SUPPLY OF AMMUNITION IN THE ECHELON OF THE ARMY.
[Le ravitaillement en munitions à l'échelon "Armée."] Major Fayet

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ADJUSTING BY HIGH BURSTS.
[Topographie de la section de réglage par coups fusants hauts.] Lieutenant de Cointet

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DISPLAY OF ARMAMENT IN THE EXPOSITIONS FROM 1873 TO 1900.
[Les fabrications d'armament dans les expositions de 1873 à 1900.]

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MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Organization of foreign armies:

Germany: Composition of artillery units.
Belgium: Organization of infantry.
Japan: Composition of the light division.
Switzerland: Organization of the division.
Great Britain: Motorization of the artillery; new autogiro.
Italy: Motorization of the artillery; motorization of the Bersaglieri.
United States: Autogiros for artillery observation.

November 1937

A STUDY ON THE DISPLACEMENT AND ENGAGEMENT OF A REGIMENT OF HEAVY TRUCK ARTILLERY.
[Etude du déplacement et de l'engagement d'un régiment d'artillerie lourde automobile.] Lieut.Colonel Le Nôtre

———

STUDIES OF THE PERSPECTIVE METHOD. A STUDY OF METHODS OF FIRE BY DIRECT OBSERVATION.
[Etudes sur le plan perspectif.] Major Duval

———

A NEW PRESENTATION OF COMPUTING PARALLAX.
[Présentation nouvelle de l'abaque des corrections planimétriques.] Lieutenant Haricot

———

CONSTRUCTION AND EXPLOITATION BY THE WIRE SECTION OF A BATTALION OF A LONG TELEPHONE LINE.
[Construction et exploitation par l'équipe téléphonique de groupe d'une longue ligne téléphonique.] Captain Robert

MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Organization and armament of foreign armies:

Germany: Army, corps and division engineers; munitions allowance of cavalry regiment; photographs by carrier pigeons.
Czechoslovakia: The Skoda cannon, 15-cm, Model 1915-16; heavy calibre machine gun; automatic rifle, Scotti-Mauser, 7.9-mm; light tank.
Great Britain: Bren automatic rifle.
Netherlands: Armament of an infantry regiment.
United States: M-2 light combat car.
Sweden: Landswerk 10 tank.
Japan: Armored car, 2.592.
Poland: Armored car, Ursus.
U.S.S.R.: Reconnaissance car, Broniefordy.

REVUE DE CAVALERIE (France)

BY MAJOR L.K. TRUSCOTT, JR., Cavalry

November-December 1937

CRISIS OF THE FRENCH MOTORCYCLE.
[La crise de la motocyclette francaise.] Captain Muffang

The author shows that use and production of motorcycles is declining in France and increasing in Germany. This fact, he considers to be a military disadvantage to France. He shows reasons for the decline as failure to satisfy purchasers because of fragility, lack of cleanliness, insecurity, discomfort, noise, and price. He points out various suggested remedies.

PRODUCTION OF HORSES IN ORAN.
[La production chevaline en Oranie.] Captain Colin

This article describes the department of Oran in northern Africa, outlines the history of horse breeding there, and describes the horse production and methods of the present time, under supervision of the French government.

MILITARY PREPARATION FOR THE MOUNTED ARMS.
[La préparation militaire aux armes à cheval.] des Lauriers

The article presents observations and criticism of actual programs of elementary preparation of reserve officers for the mounted arms, the manner of supervision, and the means of executing the instruction.

AUTOMOBILE CHRONICLE. SLOWING BRAKES.
[Chronique automobile. — Les freins de ralentissement.]

This article describes the construction and use of two types of motor brakes for heavy automotive vehicles: the S.A.F.E. electric brake, and the Westinghouse motor brake, illustrating with numerous drawings and photographs.

REVUE D'INFANTERIE (France)

By Major R.G. Tindall, Infantry

October 1938

Concerning a centennial: 26 July 1837 and the origin of the Foot Chasseurs.
[A propos d'un centenaire: le 26 juillet 1837 et l'origine des chasseurs à pied.] Colonel Guinard

An account of the development of light infantry in the French army.

The reorganization of small infantry units and their ammunition supply.
[La réorganisation des petites unités d'infanterie et leur ravitaillement en munitions.] (I) General Abadie

The author holds that the present organization of the French rifle platoon is unsatisfactory in that it places too heavy a burden on the commander of the group, who will usually be a reservist. He also believes there are too few men for proper shock action and that there is insufficient curved trajectory fire in the platoon. He proposed to combine fire and movement in the platoon instead of in the group as at present, and proposes an organization which meets his objections. He also outlines an organization for the company and battalion. His platoon would have a command section, two rifle sections and one fire support section, the latter being composed of three light machine guns and a grenade thrower (range 800 meters). He proposes to study ammunition supply in the next installment.

Note on machine-gun fire; the problem of grazing fire.
[Note sur le tir des mitrailleuses: le problème du tir rasant.] Major Courbis

A technical ballistic study involving in particular a discussion of sweeping reverse slopes.

Command and training; the organization commander's training notes.
[Commandement et instruction: les "Notes sur l'Instruction" du chef de corps.] (I) Colonel Delhomme

Examples dealing with the preparation of exercises, night exercises, liaison and the representation of fires in maneuvers.

Reflections on a system of uniform armament and the ideas of the Danish Colonel Halvor Jessen.
[Réflexions au sujet d'un système d'armament uniforme et des idées du colonel danois Halvor Jessen.] Major Laporte

The author discusses the proposed simplification of infantry weapons. Colonel Jessen suggests the single automatic weapon, a light machine gun on light tripod. This would replace the heavy machine gun and the automatic rifle. He then would employ an automatic cannon of 20-mm for antitank and antiaircraft defense. Reduction of the principal infantry weapons to these two arms would greatly simplify training and ammunition supply. However, the French author points out that there are serious gaps in the system, and that it should be completed by an infantry mortar which gives offensive power to infantry units, and a more powerful antitank gun, capable of defense against the more heavily-armored tanks. He suggests a solution of his own as a compromise between "simplification in the extreme" and the tendency toward an ever increasing number of infantry weapons. He suggests that the battalion consist of three rifle companies (each armed with

light machine guns on 1931 model tripod and 60-mm mortars), and one heavy company armed with 25-mm antitank guns and 81-mm mortars. The heavy machine gun would disappear as a battalion weapon. He also insists that an automatic cannon capable of fire against both aircraft and tanks is needed.

November 1937

THE REORGANIZATION OF SMALL INFANTRY UNITS AND THEIR AMMUNITION SUPPLY.
[La réorganisation des petites unités d'infanterie et leur ravitaillement en munitions.] (II) General Abadie

In this installment General Abadie points out the increased necessity of munitions supply, because of the rapid rate of fire of automatic weapons. He then proposes that in each rifle company there be formed a special munitions supply detachment of 15 noncommissioned officers and privates, charged with transporting munitions from a company distributing point to the front-line platoons. He suggests a somewhat similar measure in the accompanying (machine-gun) company and he wants a platoon of 24 men in the battalion, charged with transporting munitions as far forward as the company distributing posts. He likewise wants a somewhat similar regimental platoon.

THE SIEGE OF VERDUN IN 1792.
[Le siège de Verdun, en 1792.] Lieut.Colonel Chaligne

COMMAND AND TRAINING; THE ORGANIZATION COMMANDER'S TRAINING NOTES.
[Commandement et instruction: les "Notes sur l'Instruction" du chef de corps.] (II) Colonel Delhomme

The training directives dealt with include details of infantry-tank liaison, the tactical instruction of noncommissioned officers, the choice of formation by infantry units when exposed to fire, and small units' security on the march.

MACHINE-GUN FIRE: SPECIFIC CONCLUSIONS.
[Tir des mitrailleuses: Essai de mise au point.] (I) Lieut.Colonel Paille

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REFLECTIONS ON INFANTRY TRAINING METHODS.
[Réflexions sur la méthode d'instruction de l'infanterie.] Lieut. Colonel de Liocourt

Suggested changes in the sequence of instruction of French infantry. The author wants to begin teaching recruits, starting with the very first day, the firing positions, and the advance by rushes and by creeping and crawling. He wants to fill in odd periods with close order drill, in bad weather for example.

December 1937

GENERAL GOURAUD.
[Le général Gouraud.] Marshal Pétain

Testimonial to the retiring Governor of Paris by Marshal Pétain, who traced Gouraud's career. The latter as early as 1890 and when only a lieutenant had become known as an outstanding officer. After the Armistice in 1918 the French found in Strasbourg in a German General Staff file, the following 1890 notice on Lieutenant Gouraud: "A coming officer; should be watched." Pétain paid tribute to Gouraud's services during the World War, saying that he was the first army commander to apply whole-heartedly

GHQ's directive of 20 December 1917 concerning the defensive battle, and that the result was the classical victory of 15 July 1918.

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MACHINE GUNS IN FRANCE PRIOR TO 1914.
[Les mitrailleuses en France avant 1914.] General Blin and Captain Joubert

The development of machine guns in the French army. The author absolves the French High Command of failure to provide sufficient machine guns for the army before the World War and shows that the French regiment had as many as the German regiment.

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THE SIEGE OF VERDUN IN 1870.
[Le siège de Verdun en 1870.] Lieut.Colonel Chaligne

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OBSTACLES IN MODERN WAR: GERMAN OPINIONS.
[Les obstacles dans la guerre moderne: Opinions allemandes sur les barrages.] By M

Analysis of German documents and articles dealing with "Sperren" tactics.

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MACHINE-GUN FIRE: SPECIFIC CONCLUSIONS.
[Tir des mitrailleuses: Essai de mise au point.] (II) Lieut.Colonel Paille

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MOTORIZED SECURITY ELEMENTS IN BATTLE; STUDY OF AN ILLUSTRATIVE EXAMPLE.
[Les organes de sûreté motorisés dans la bataille: Etude d'un cas concret.] By Z

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REVUE MILITAIRE GENERALE (France)

BY MAJOR R.G. TINDALL, Infantry

October 1937

REFLECTIONS ON AERIAL DANGER.
[Réflexions sur le danger aérien.] Vice-Admiral Castex

The author makes a comprehensive survey of the capabilities of aviation today. He concludes that bombardment aviation presents a terrible danger but cannot by itself win a decision. He then suggests measures which should be taken against this aviation.

He insists that a complete evolution of capital ships is essential and demands that these be heavily roofed over with protective armor. For smaller ships he would depend on greatly increased mobility. He demands that such ships be able to turn and twist like tops, within their own length. Larger rudders, more rudders, even front rudders if necessary, but increase maneuverability, is his argument. He points out that bombardment aviation in war does not achieve the results it gets in practice. After considering all possibilities he concludes that the airplane cannot drive the surface fleets from the seas, provided the latter react.

As to terrestrial targets, he notes the greatly increased range of modern bombardment and concludes that dispersion of probable targets is essential. Large cities will attract enemy aircraft, particularly if the distance is great. One does not fly 800 kilometers in enemy territory to bombard some small village, but to strike a remunerative objective. The enemy will concentrate his efforts on those objectives which are believed to have a military interest.

Consequently the large centers should be evacuated to a certain extent. The useless inhabitants and the important services and administrations should go. Paris should be emptied of important elements and the state organizations, at least those whose functioning is essential to the nation. These should move into the suburbs or even farther.

In order to prevent mobilization being impeded, dispersed dispositions should be adopted. Important mobilization centers should never be placed in large cities, nor should stores of war material. All such supplies, arms and equipment should be disseminated in small places. Admiral Castex suggests that old forts may render great services in this way.

He then turns to the question of communications. These too must be dispersed. No more railways must be constructed near important roads and vice versa. No tunnels or bridges must be enlarged. Instead additional routes must be built. He favors increased use of river and canal transportation, and increased use of secondary ports. Electrification of railways must be limited near threatened frontiers.

Continual air threats will bring about, despite the dispersion of national industry which may be realized, a great reduction in the production of war matériel at first. Consequently initial stocks of this material must be greater than is the present custom.

Negative camouflage can have certain effects in hampering adverse aviation, but the best results will be secured by positive camouflage, by giving the enemy false targets on which to unload his bombs. A convenient large city, evacuated of most of its population and military establishments, might well save the rest of the country by attracting the hostile bombs, provided the secret was well kept.

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THE GENESIS OF THE MARNE.
[La genèse de la Marne.] Lieut.Colonel Malcor

The author examines the relations between German GHQ and the army commanders as related in the German Official History. He traces events up to the opening of the battle and then draws conclusions.

The fact that the Kaiser was the titular head of the army tendered to hamper Moltke, the Chief of Staff, and to hold him back from the front. Moltke also failed to hold him back from the front. Moltke also failed to keep a firm hand on the reins and did not insure good communications with the right wing armies.

In the first battles numerous chances were lost because GHQ did not take control. Instead, each of the army commanders went his own way. Moltke was none too enthusiastic over the original Schlieffen plan and only needed a pretext to make operations in Lorraine the main effort. Gradually he retouched this plan, oscillating between two ideas.

The principal cause of the German failure was that the German GHQ lost sight of the following fundamental principles of strategy: Be strongest at the decisive point, and engage simultaneously all the forces destined to one single shock.

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ARE WE PREPARING FOR MOBILE WARFARE OR STABILIZED WARFARE?
[Préparons-nous la guerre de mouvement ou la guerre de stabilisation?]

The author answers that the French are preparing for mobile warfare, but that in order not to have stabilization it is necessary to know how to overcome the principal bar to warfare of movement — the organized position. He points out that only the older French officers now know how to tackle the attack of such a position and suggests that some training be given along these lines. Otherwise he fears that the hatred of stabilized warfare will tend to bring about that very condition. It is necessary to eradicate the stupidity of considering among the various forms of war, only those which please us. He warns against seeing things, not as they are, but as we would like to have them.

November 1937

THE AFFAIR OF LA CHENAL IN 1743.
[L'affaire de la Chenal en 1743.] General Dentz

A study of a French-Spanish mountain operation. The concentration and the marches to the frontier were well conducted but the opposing Sardinians learned of the movements in time. The maneuver resulted in a frontal attack of a strong position with insufficient means, the assailants failing to make sufficient effort to gain surprise. The assailants were routed.

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THE CONDUCT OF WAR. GENERAL JOFFRE AND THE YEAR 1915.
[La conduite de la guerre. Le général Joffre et l'année 1915.] Colonel Menu

The repeated Allied attacks of 1915 against the German defenses in the west have been criticized in the strongest terms by many military writers. The small amount of tactical success and the huge losses tended to discourage the French at the time and few historians have felt that they were remunerative.

Colonel Menu combats this view violently. In order to judge correctly, he insists that not only the Western Front be considered, but all the theaters of the World War. He traces in particular, events on the Russian Front, shows the crises which developed there in 1915, and the response of French GHQ. Each time the Russians got in a jam, Joffre did something to help them.

As he traces events of that year, Colonel Menu makes out a good case for some of the bitterly criticized French offensives. He then takes up the question of German effectives, and shows that the German manpower dated its true decline from 1915.

As the result of his study, Colonel Menu makes the bold conclusion that the French offensives of 1915 saved Russia for more than a year and thereby prevented a German victory in the field. Not only that, he affirms that victory was only gained in 1918 because Joffre's attacks of 1915 used up the German forces real reserves.

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PRINCIPLES AND CONDITIONS OF WAR.
[Principes et conditions de la guerre.] Lieut.Colonel Béthouart

The French attaché to Yugoslavia reviews the strategy of the past and examines the conditions of today. He quotes the French General Debeney in regard to the manner in which an aggressor state can get the jump today on an adversary. General Debeney suggested that the aggressor state might decide three years in advance to force matters at a certain period.

"During these three years, it will alter and complete its war reserves, its peace-time armament, so as to have perfected models at the end of the period; at the same time it will proceed to a complete revision of the personnel of its industrial mobilization; it will order raw materials, and discreetly install the special tools destined to transform the factories; one or two months before the end of the period it will start its war fabrications. This last operation will quickly become known and will bring about diplomatic complications, which it will involve as much as possible in order to gain a few weeks more and the cataclysm will be unchained."

Colonel Béthouart asks whether France has the army of her policies. In particular he asks whether the French army is capable of a sufficiently rapid offensive to act when and where French policies would demand such action.

He also brings up for examination the question of a super-generalissimo in charge of all elements of national defense. In the strictly military domain, he insists that the action of a leader and maneuver are still possible and alone are decisive.

WHAT SHOULD AN OFFICER READ?
[Que doit lire un officier?] Lieut.Colonel Mayer

After a little discussion, in which he points out a few dangers of reading, the author concludes that after all an officer should read. His first suggestions are largely along the line of cultural and philosophical studies. He recommends historical books and the military classics, such as Napoleon, Jomini, Clausewitz, and Grouard. Other studies which meet with favor are by Ardant du Picq, Prince Hohenlohe-Ingelfingen, and the Russian Baron Kaulbars, but the majority of his suggestions are almost wholly unknown to Americans. His conclusion is that the thought of others is only worth while for us if it provokes ideas of our own or is confounded with them.

December 1937

SELECTION AND TRAINING OF PERSONNEL NECESSARY FOR ANTIAIRCRAFT DEFENSE.
[Choix et instruction du personnel nécessaire à la défense antiaérienne.] General Niessel

A complete discussion of territorial air defense of France. The author insists that a warning system with a checkerboarded network of posts 40 to 50 kilometers apart is necessary. This alone requires some 20,000 men furnished, not by the regular army but by French reserves. General Niessel emphasizes that for territorial defense the action of aviation is restricted since there is insufficient pursuit to cover the country as a whole and the armies' front also. The latter gets first call. General Niessel insists that true protection by aviation should be offensive and consists of attacks of hostile airdromes besides making the adversary fear reprisals, eye for eye and tooth for tooth. He says that 150,000 men are needed for antiaircraft artillery and machine guns. These men should come from former officers and soldiers who have terminated their military service and from young men of less than 18 years of age. He also discusses practical ways of giving instructions to the entire populace, using several hundred thousand men as instructors. These would include police, firemen and civil officials.

HOW TO ADAPT OURSELVES TO THE CAPABILITIES OF PRESENT ARMAMENT.
[Comment s'adapter aux possibilités de l'armement actuel.] Colonel Chiavarini

The author discusses first General de Cugnac's analysis of Napoleon's method which was given as three steps: first, fix the enemy; second, execute an enveloping attack against one hostile flank in order to oblige the enemy to weaken that part of his front closest to the threatened wing; third, principal attack against that part of the hostile front thus weakened. He then points out the difficulty of doing this with modern weapons and cites the danger of a war of attrition in Europe where the continuous front will be the rule. The hostile people, not the hostile army, constitute the objective today, he points out, and proposes that the weakening of the enemy be accomplished by means of aviation. His suggestion is to strike with aviation at chosen objectives, "the means which a people has to supply its armies with morale, men, supplies and matériel: political, literary and religious centers, means of communication and transport, factories and warehouses of cities and ports, aeronautic bases." The fixing of the enemy would be started in peace time by means of permanent fortifications and covering troops. Then when the enemy has been weakened, a general attack with ground forces would deal the decisive blow. Colonel Chiavarini thus seems to advocate a modified form of the Douhet theory, demanding of aviation not the complete offensive which deals the decisive blow, but a preliminary paralysis (not attrition) of the enemy so that a decisive blow by ground forces can succeed.

POWERFUL MOTORIZED INFANTRY.
[L'infanterie "puissante motorisée."] Major Drumillon

The author points out that under European conditions the best infantry of today is capable of holding a position in the open but that no true offensive infantry exists. He insists that it is necessary for France to have ten divisions of offensive infantry by 1940 and proposes definite organization and type weapons for this infantry.

His organization is for a maneuver force based on infantry, but a changed type of infantry. It therefore differs from the German armored division conception in which the infantry seems rather secondary. Major Drumillon's division could be powerfully reinforced in artillery and tanks as desired, but the infantry component by itself is capable of considerable offensive power under modern conditions. For example, the infantry regiment would contain numerous tanks. In a breakthrough attack, these would be preceded by general maneuver tanks of a more powerful type, but in open operations the infantry regiment could take care of itself.

The weapons of his infantry regiment would be as follows: Each indidual to have a submachine gun or machine pistol capable of automatic fire. The heavy machine-gun company to have a 9-mm weapon and participate in antitank and antiaircraft defense as well as execute fires up to ranges of 5,000 meters. Antitank guns of 25-mm to be on special mounts. The battalion to have a 50-mm gun on a self-propelled mount in order to deal with particularly heavily armored tanks. A complete system of trajectory fire is provided with 60-mm mortars in the rifle company and improved 81-mm mortars in the battalion. The regiment to have regimental mortars with a range of 5,000 meters (like the present German regimental weapon) and to take over direct support missions from the artillery.

The tanks of the infantry regiment are of five types: transport tanks, liaison tanks, combat tanks, self-propelled mounts for weapons, and medical tanks. All except the latter are armed. These tanks are of 3½ to 4 tons and should be capable of moving 30 to 40 kilometers an hour on roads, and 20 to 30 kilometers across country.

The rifle company would consist of a company headquarters platoon and four combat platoons. The headquarters platoon contains a company tank transporting headquarters observation and signal equipment, a munitions reserve and gas defense equipment, a liaison tank, a tank carrying the company's three 60-mm mortars, one of which is capable of firing from the tank, a supply tank and a light truck.

The battalion has a total of 55 tanks, carrying antitank guns, battalion 50-mm guns, battalion mortars and liaison and supply tanks. The regiment contains three battalions, a service company, an infantry tank company and a regimental mortar company. In all, it contains 260 tanks and 90 trucks.

Major Drumillon points out that its time length on a road is not greater than that of the Northeast Frontier type regiment of the present. He then discusses the cost of such regiments and finds that while they are higher than the usual infantry figures, they are small when compared to naval and aviation estimates.

Undoubtedly Major Drumillon's conception, like all novel things, contains certain drawbacks and disadvantages. It is a whole-hearted attempt to restore mobility and offensive fire-power to the infantry. Such infantry, grouped by divisions and reinforced in tanks and artillery would constitute an even more powerful striking force than the German armored divisions.

Had the idea not been considered to have a certain merit, the article would not have appeared in the "Revue Militaire Générale." However, the idea of a de luxe force, a special striking army better equipped than the average line troops, has determined opponents in France, notably General Debeney, and there is little chance of Major Drumillon's proposals being adopted in their entirety. On the other hand, a portion of his ideas, in a modified form, may appear before long in the Northwest Frontier divisions, the French covering forces.

REVUE MILITAIRE SUISSE (Switzerland)

BY MAJOR T.R. PHILLIPS, Coast Artillery Corps

October 1937

IMPRESSIONS AND EXPERIENCES OF THE SPANISH WAR.
[Impressions et expériences de la guerre d'Espagne.] (I) Captain Bauer

Captain Bauer entered Spain at Irun, 22 July 1937, and left on 18 August. While there he traveled 1,800 miles through Insurgent Spain visiting the Madrid front and entering Reinosa a few hours after it was captured during the advance to Santander. He made occasion to gain information from combatants of the various battles. His comments are objective and valuable as he is a competent soldier.

Among the primary strategical elements is mastery of the sea. If the civil war had endured for only a few months this would not have assumed great importance. But as the war is prolonged and the initial equipment of the combatants is exhausted, the importance of sea communications increases. Both contenders have to depend on foreign sources for much of their supplies. Franco has no terrestrial contact with Europe, except through France, which is distinctly hostile to him. If the Government had been able to blockade the sea, Franco would have been deprived of his man power from Morocco as well as the assistance received from Germany and Italy.

The Spanish fleet remained with the Government. The men killed their officers who would have delivered it to Franco. But the lack of officers was soon felt and the fleet became unable to operate. In the meantime, the Insurgents had captured the navy yard at Ferrol and there completed two new 10,000-ton cruisers, the "Canarias" and "Baleares." These outclassed all the ships in the hands of the Government. The Government has been unable to replace the naval officers massacred, with the result that the Government fleet is non-existent on the sea. This follows the pattern of the French revolution when the killing and emigration of the officers of the excellent fleet of Louis XIV resulted in an inability to replace these essential cadres during the wars of Napoleon.

The Insurgents are well fixed from a supply point of view. Production of food stuffs is sufficient, not only for their own needs, but to give a surplus for export. In general, the Insurgents have native basic supplies of every sort sufficient for their needs, except gasoline. Both the Government and the Insurgents must import this, but many of the Government cargoes fail to get through the Insurgent blockade and reach harbors.

The Insurgent army has probably reached the figure of 700,000 men. Theoretically, Franco could raise a million and one-half in the territory controlled by him, but he chose, rather, to increase his forces only to the extent that he was able to officer them well and to maintain them equipped with a suitable proportion of the more technical armaments.

The Government has more effectives than Franco, but they are poorly led and less well equipped. They have sacrificed their human material while Franco has preserved his. In Government Spain conscription has been applied to all men from the ages of 18 to 37 and many over 40 are in the army. Franco has called classes from 20 to 27 in age.

The density of the troops in line is very feeble. Two divisions cover the line from the sea at Malaga to the mines at Pennarroya. At the battle of Brunete, Miaja found that the Insurgents were holding Brunete with 200 men and Quijorna with 115. Under such circumstances it is obvious why local victories are possible for either side.

The slowness of the operations is explained by the paucity of troops. The war is a succession of fits and starts. The small maneuvering force must go from one task to another. An offensive by the Government can stop the Insurgent plans because the Insurgents have to move their offensive force from its task to block and counterattack. This is what happened to the Santander offensive which was delayed by the use of troops intended for it to counterattack at Brunete.

The Insurgents lack the equipment to carry through an offensive operation against a well fortified sector. Thus any further attack directly against Madrid is impracticable. They are reduced to a strategy of diversion, applying their force to the feeble parts of the enemy lines. There is considerable similarity between Franco's and Sherman's strategy.

Civilian and military opinion in Insurgent Spain is definitely for continuing the war to the end. The tales of refugees escaped from Loyalist territory convince them that it is either win or die and that there is no third solution.

THE EMPLOYMENT OF AUTOMATIC RIFLES ON TRIPODS.
[L'emploi des fusils-mitrailleurs sur trépied.] Captain Daniel

In view of the difficulty of advancing heavy machine guns with the infantry the automatic rifle on a tripod is recommended for support. It is effective to counter machine-gun fire. To make up for its limited capacity it should be employed in mass. On the tripod it is also an effective antiaircraft weapon.

November 1937

IMPRESSIONS AND EXPERIENCES OF THE SPANISH WAR.
[Impressions et expériences de la guerre d'Espagne.] (II) Captain Bauer

From a desire to retain and increase public support the Insurgents rejected general conscription. They also wished to avoid the excessive use of national resources. The same considerations led Franco, when the route to Madrid was open, to divert General Varela's column for the rescue of the Alcazar. Undoubtedly in the future this will be held up as a serious error on the part of the Insurgents, for eventually the psychological state of the Spanish people will have been forgotten and this operation will be judged solely from a strategical point of view. It is indubitable that the fall of the Alcazar, which would have been followed by the massacre of its garrison, would have produced a disastrous impression of all Insurgent Spain. Thus the capture of Madrid was only a possibility which would have been unwise to balance against the certainty of the loss of the Alcazar and the certain death of Colonel Moscardo and his admirable companions.

Equally, in an ordinary war between two powers observing the usages of humanity, the costly diversion of resources which kept Oviedo in Insurgent hands for a year until its deliverance would not have been considered worth the cost. For moral reasons the strategy of a civil war is subject to certain geographic servitudes which are different than in a war between two hostile nations.

Since the offensive against Guadalajara, the Insurgents have waged war with extreme prudence. Precautions have multiplied and strength has been used against weakness. Offensives have had limited objectives and also the losses of the assailants have been small. Objectives have been neutralized, if not destroyed by shells and bombs and the operations have been halted at the limit of the initial preparation. Thus exploitation of success has been sacrificed. This, of course, has given rise to the many tales of lost opportunities, such as Guadalajara, Bilbao and Brunete on 25 July. Certainly on both sides there have been many missed opportunities, but in reality General Franco has not lost as many as the foreign critics indicate.

If one adopts the Insurgent terminology, only the Insurgents can be considered as Spaniards; thus at Salamanca and Burgos the war is presumed to be a war between Spain and Soviet Russia, installed at Barcelona, Madrid and Valencia, thanks to the treachery of certain evil citizens. According to the same theories the major part of the population in the Red zones submit against their will to the domination of foreigners and are forced to serve in the Governmental militia. Consequently the attempt, and with success, to recruit soldiers from among the Red prisoners in concentration camps. However, the quality of the recruits is not always cause for felicitation. At the Cerro de los Angeles, the treachery of a company composed in large

part of these recruits from the Red army, just missed giving the Government possession of this isolated hill which constitutes a marvelous observing point for the whole of the Madrid plain.

A notable part of the war is conducted underground. Both sides have numerous spies with the other. Among the Reds, particularly, there is no doubt that an important part of the population waits impatiently for Insurgent victory, while affecting indifference or enthusiasm for the Popular Front. These are what the papers of Madrid, Valencia and Barcelona call the 5th Column. Assassinations and executions have exterminated only a few among the masses of discontent.

Well led, the Spaniards have always been good soldiers. In the Moroccan wars, which started in 1909 and lasted seventeen years, the officers and the army had considerable experience. The work of reorganization after the capitulation of Abd-el-Krim was especially successful. Generals Sanjurjo and Franco not only knew how to establish order, but also to impose their prestige and conciliate the Moroccan population by their justice and firmness. Most of the officers on the active list had fought in Morocco. Large numbers of Spanish officers had attended the Ecole de Guerre in Paris, while the Spanish staff school, modeled after the Ecole de Guerre and excellently run, had graduated large numbers. During his dictatorship, Primo de Rivera had introduced selective promotion. Contrary to the commonly held opinion which credits the Insurgent military successes to German and Italian advice, the Spanish regular officer corps is excellently capable and is responsible for Franco's victories.

The Spaniard, officer and soldier, is brave to a fault. Junior officers' casualties have been excessive, like those of the British in the early phases of the Great War. Like the British they refused to kneel behind a trench or wall to protect themselves, the commander places himself at the head of the leading echelon. The troops love to see it and follow them devotedly. Results have been costly; from January to June, 1937, more than a thousand lieutenants were killed. Colonels and generals fight with the same spirit. They have shown that the crackling of bullets was more enjoyable to their ears than the tinkling of the telephone or clacking of typewriters at their headquarters. Such are the traditions of the Spanish army and the Insurgents seem to have proved themselves worthy heritors of these traditions.

RIVISTA DI ARTIGLIERIA E GENIO (Italy)

By Major E.M. Benitez, Coast Artillery Corps

October-November 1937

NEW REGULATIONS FOR THE EMPLOYMENT OF ARTILLERY.
[Le nuove norme d'impiego dell'artiglieria.] Major General Fautilli

The old regulations published in 1921, were based upon the lessons of the World War. As conditions have changed, it has become necessary to introduce some modifications suitable for a war where a quick decision is desired. The author covers the most important points of the new regulations, such as: the fire action of the artillery; cooperation with other arms, particularly with the infantry; displacement; centralization and decentralization of division artillery; employment of artillery in attack and defense; counter-battery, and employment of artillery in conjunction with tanks.

OUR ARTILLERY AT THE BEGINNING OF THE WORLD WAR.
[La nostra artiglieria all'inizio della grande guerra.] General Ago

At the beginning of the World War in 1914, there was a considerable shortage of artillery matériel and personnel in the Italian Army, which had been aggravated by the war in Libya. These grave deficiencies were fully realized by General Cadorna when he became Chief of Staff of the Army.

When the war broke out there were only 96 field pieces per army corps; of 36 field artillery regiments, 5 were inactive and 5 others could not be properly organized for lack of equipment.

On 24 May 1915, the artillery consisted of the following matériel:

1,797 pieces, small caliber
192 heavy field pieces
132 heavy field guns, on rigid carriages.

Austria at this time had:

3,120 pieces, small caliber
484 heavy field pieces.

Moreover, the Austrian artillery was now equipped with a new model howitzer 305-mm and 380-mm and 150-mm and 240-mm guns. The preponderance and superiority of the Austrian artillery is evident.

By May 1915, Italy only had available 5 dirigibles and 12 airplane squadrons, with a total of 58 planes.

On mobilization day there was a shortage of 13,000 officers in the Italian Army. The shortage of artillery officers was such that it became necessary to correct it, partly at least, by utilizing cavalry officers.

On the other hand, France and Germany had kept their artillery up to date, while the Italian artillery was, as we have shown, inferior to that of Austria.

QUICK CALCULATION OF BASE LINES FOR PREPARATION OF FIRE.
[La misura celere delle basi nella preparazione per la manovra di fuoco senza punti di posizione noti.] Colonel Balotta

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EXPERIMENTS ON THE PRESERVATION FOR CONSIDERABLE TIME AT 80° C TEMPERATURE, OF EXPLOSIVES OF DIFFERENT AGES.
[Esperienze di conservazione prolungata ad 80° ed in ambiente secco di balistiti di varia età e provenienza.] Drs. Tonegutti and Brandimarte

A technical study showing the preservative effect of calcium oxide on nitrocellulose powder.

CALCULATION OF ANTIAIRCRAFT FIRE.
[Sui calcolatori per tiro controaerei.] Captain Piacquadio

A discussion of the preparation and calculation of data for antiaircraft artillery.

INFLUENCE OF THE CHARACTERISTICS OF A MOTOR VEHICLE CHASSIS ON ITS PERFORMANCE ON ORDINARY ROADS.
[Influenza delle caratteristiche dello châssis di un autoveicolo sulla sua attitudine a percorrere le strade ordinarie.] Colonel de Braud

The author shows by mathematical computations the relations between the wheel-base, width of track and turning radius, and explains the minimum width of roads required for a vehicle to take hairpin turns.

AMMUNITION SUPPLY WITH SPECIAL APPLICATION TO MOBILE WARFARE.
[Rifornimento munizioni con particolare riguardo alla guerra di movimento.] Brigadier General Monti

One of the most important services in time of war is ammunition supply, which is of even greater importance in mobile warfare.

The desire to increase fire-power has increased the number of automatic arms in the infantry, accompanying weapons, antitank guns and made further improvements in the old arms. This has resulted in a larger consumption of ammunition and has, consequently, increased the weights to be transported. For example, the increase of automatic arms in a division alone has increased the weight of ammunition of a unit of fire from 61 tons to 105 tons.

Mobile warfare demands immediate superiority of fire over the adversary, a dynamic, surprising, rapid use of artillery fire; this means a larger consumption of ammunition.

The author takes up as a specific example the ammunition supply of a corps of two divisions, with its corps artillery. In this case it requires 332 trucks, while the corps has available only 120; the remainder must be, then, supplied by the army. In a division the ammunition required for a single day's battle requires 3½ times the transport necessary for a day's ration and forage.

The author gives several suggestions for speeding up the rate of ammunition supply and recommends the use of airplanes.

December 1937

THE CORPS OF ENGINEERS DURING THE YEARS XIII AND XIV OF THE FASCIST ERA AND DURING THE CAMPAIGN IN EAST AFRICA.
[L'Arma del Genio negli anni XIII e XIV dell'era fascista e durante la campagna in Africa Orientale.]

The last of the articles on the above subject in which the author describes some of the works carried out by the engineers during the Campaign in Abyssinia. These consisted of construction of forts, railways, bridges, sinking wells, constructing reservoirs, construction of new roads and improvement and maintenance of existing ones.

TRAINING OF RADIO OPERATORS.
[Il problema dell'addestramento della specialità radiotelegrafisti al servizio r. t. d'insieme in reti complesse.] Colonel Agostino

A discussion showing the organization of a school for radio operators for service in campaign.

USE OF GRAPHS FOR CALCULATING DIMENSIONS OF EMERGENCY BRIDGES.
[Abbaco per il calcolo dei ponti di circostanza.] Lieut.Colonel Steiner

Mathematical computation of graphs and practical examples showing its uses. Considerable time can be saved by these graphs.

SUGGESTIONS FOR LEVELLING OF GROUND FOR CONSTRUCTION OF AIRDROMES.
[Contributo allo studio dei movimenti di terra per la construzione degli aerodromi.] Lieut.Colonel Pallavicino

The rapid increase of aviation in recent years requires the construction of a large number of airdromes and landing fields. While formerly a landing field, fairly level and clear of trees was considered satisfactory, the increase of weight and speed of planes now demand better fields with a straightways of about 6,500 feet in length.

The author explains the most economical system of levelling the ground. While the ground need not be absolutely level, a uniform slope of 2 per cent should not be exceeded. Other requirements for a landing field site are: greatest length should be in the direction of the prevailing wind; the surrounding ground should be such as not to obstruct landings in any direction,

and good drainage in order to reduce the number of drainage lines to a minimum.

ROYAL AIR FORCE QUARTERLY (Great Britain)

April 1938

SOME ASPECTS OF AIR RAID PRECAUTIONS (A.R.P.). Major General Rowan-Robinson

AIR NAVIGATION AND MODERN AIRCRAFT. Squadron Leader Fressanges

A LIBYAN DESERT RECONNAISSANCE. Squadron Leader Tattersall

ROYAL ENGINEERS JOURNAL (Great Britain)

March 1938

GUL KACH BRIDGE. Lieutenant Barton

FIELD DEFENCES. Colonel Pridham

DEFENCE WORKS AT DARWIN. Captain McNicoll

DEMOLITION OF REINFORCED-CONCRETE BRIDGES. Major Spottiswoode

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UNITED SERVICES REVIEW (Great Britain)

3 February 1938

THE DEVELOPMENT OF SIGNALLING. Captain Macnamara

WAR-BREAKERS AHEAD. JAPAN'S POLICY OF EXPANSION. Air Commodore Charlton

10 February 1938

DIFFICULTIES OF AN EXPANDING AIR FORCE. Air Commodore Charlton

NOW IS THE TIME FOR JAPAN TO STOP WAR. Captain Macnamara

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HOW HITLER IS TRAINING THE NEXT GENERATION OF GOVERNORS. Captain Macnamara

CRITICAL PERIOD IN THE SPANISH CIVIL WAR. Air Commodore Charlton

24 February 1938

THE BOMBING OF CIVILIAN POPULATIONS. GERMANY'S REARMAMENT IN THE AIR. Air Commodore Charlton

SEA POWER. THE CHANGELESS FORM OF WAR. Sir Herbert Russell

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THE WARS IN SPAIN AND CHINA. IS THERE A LESSON TO BE DRAWN FROM THEM? Air Commodore Charlton

GERMANY AND AUSTRIA AND THEN? Captain Macnamara

10 March 1938

THE JUGULAR VEIN OF THE BRITISH EMPIRE. RELATIONS WITH ITALY AND THE IMPORTANCE OF THE MEDITERRANEAN. Air Commodore Charlton

17 March 1938

IS AIR PARITY POSSIBLE? Air Commodore Charlton

24 March 1938

CONFUSION OF THOUGHT CONCERNING AIR POWER. Air Commodore Charlton

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THE PROCESS OF "NAZIFICATION." WILL IT EVENTUALLY LEAD TO WAR? Air Commodore Charlton

7 April 1938

WHAT IS THE FUTURE OF EUROPE? GERMAN AGGRESSION AND ITALIAN DIPLOMACY. Air Commodore Charlton

14 April 1938

WHITHER ENGLAND? OUR FOREIGN POLICY AND SPAIN. Air Commodore Charlton

21 April 1938

AN IRON BELT ROUND THE WAIST OF EUROPE. WHAT ARE THE AIMS OF ITALY AND GERMANY? Air Commodore Charlton

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WISSEN UND WEHR (Germany)

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

November 1937

THE TROJAN HORSE AND FORT DOUAUMONT.
[Das Trojanische Pferd und der Douaumont.] Major von Klüfer

AIR ATTACKS AGAINST MERCHANT VESSELS.
[Luftangriffe aud Handelsschiffe.] Captain Waldeyer-Hartz, German Navy

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CARL VON CLAUSEWITZ. Eberhard Kessel

December 1937

POLITICAL AND MILITARY IMPORTANCE OF ANTIAIRCRAFT PROTECTION.
[Die wehrpolitische Bedeutung des Luftschutzes.] General Grimme

The political and military importance of antiaircraft protection may be deduced from the efforts that Germany is making to protect her 67 million people, located in the heart of Europe.

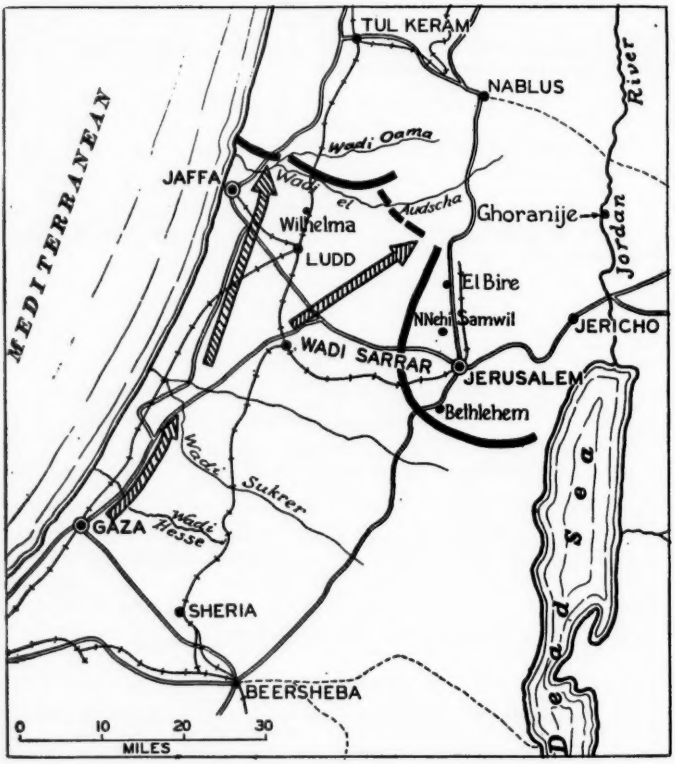
The new agencies of war, the general distribution of military forces and, above all, the great radius of action of the air arms, expose the inhabitants of the country to air attacks, even in the most remote corners. The World War changed conditions. Just like the invention of powder in former days, the air arm and chemicals will completely revolutionize war tactics and thereby change the fate of nations in the future. The author discusses international law and then emphasizes the importance of antiaircraft defense in case of war, recommending training for all inhabitants, including women and children, in order to avoid panics.

THE PARTICIPATION OF THE MOUNTED UNITS OF THE EGYPTIAN EXPEDITIONARY CORPS IN PALESTINE. THE COMBATS TO CAPTURE JERUSALEM. RAIDS ON TRANSJORDAN.

[Der Anteil berittener Truppen des "Agyptischen Expeditionskorps" an dem Kampfe um Palästina.] Major Welsch

The events described may be summarized as follows:

(1) Advance of the British army against the Turkish positions at Gaza; retirement of the Turkish army to the north, behind the Wadi el Audscha, eighteen miles northwest of the line: Jerusalem — Wadi Sarrar. Reorganization of the Turkish defense; counteroffensive to relieve the Turkish VII Corps which had fallen back on Jerusalem.



(2) Lack of water causes a modification of the British plans. It is decided to attack and capture Wadi Sarrar, which not only would provide water, but it would also disrupt the supply system of the Turkish VII Corps. The main objective: Jerusalem, due to political and strategical reasons.

(3) The British command give up a frontal attack against Jerusalem. Having received information from its aviation that the Turks were retreating, the British decide upon an advance towards El Bire, situated eight miles north of Jerusalem, cut off the defender's communications, thus making their position untenable. The battle of Nebi Samwil resulted in a British defeat

with heavy losses and placed them in a precarious situation. The troop movements observed by the aviators were wrong; they were reported as a retreat and were concentration of troops instead.

(4) Reorganization of the British forces for an attack on Jerusalem, which for some reason unknown to this day, was abandoned without fighting.

(5) New British plan of operations, the objective of which was the destruction of railway installations in Amman and gain contact with the forces of Emir Faisal. This resulted in the "Battle of the Jordan," which the British call "Raid on Amman." The British failed due to the Turks' counterattacks, and only the lack of cavalry failed to convert a retreat into a rout.

(6) Second Battle of the Jordan.—The British command decided upon another offensive in May in the valley of the Jordan in order to weaken the right wing of the Turkish Army. A tribe of Bedouins, camping only 18 miles from Ghoranije, offered its cooperation provided the offensive was launched in the early part of May. The British, desiring to accept this offer, ordered the attack for 30 April. The attack failed and the British had to withdraw with enormous losses.

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List of Periodicals Indexed and Key to Abbreviations

A Ord—Army Ordnance

A Quar—Army Quarterly (Great Britain)

Bul Belge Mil—Bulletin Belge des Sciences Militaires (Belgium)

Can Def Quar—Canadian Defence Quarterly (Canada)

Cav Jour—Cavalry Journal

Cav Jour [GB]—Cavalry Journal (Great Britain)

CA Jour—Coast Artillery Journal

FA Jour—Field Artillery Journal

Ftg Forc—Fighting Forces (Great Britain)

La France Mil—La France Militaire (France)

Inf Jour—Infantry Journal

Jour RAMC—Journal of the Royal Army Medical Corps (Great Britain)

Jour R Art—Journal of the Royal Artillery (Great Britain)

Jour RUSI—Journal of the Royal United Service Institution (Great Britain)

Jour USII—Journal of the United Service Institution of India (Great Britain—India)

Kraft—Kraftfahrkampftruppe (Germany)

MC Gaz—Marine Corps Gazette

Mil Mitt—Militärwissenschaftliche Mitteilungen (Austria)

Mil-Woch—Militär-Wochenblatt (Germany)

Mil Eng—Military Engineer

Mil Surg—Military Surgeon

Nav Inst Proc—Naval Institute Proceedings

Pion—Pioniere (Germany)

QM Rev—Quartermaster Review

Res Off—Reserve Officer

Rv d'Art—Revue d'Artillerie (France)

Rv de Cav—Revue de Cavalerie (France)

Rv d'Inf—Revue d'Infanterie (France)

Rv Mil Gen—Revue Militaire Générale (France)

Rv Mil Suisse—Revue Militaire Suisse (Switzerland)

Riv Art e Gen—Rivista di Artiglieria e Genio (Italy)

RAF Quar—Royal Air Force Quarterly (Great Britain)

Roy Eng Jour—Royal Engineers Journal (Great Britain)

US Rev—United Services Review (Great Britain)

Ws & Wr—Wissen und Wehr (Germany)

Jan—January
Feb—February
Mar—March
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Mesopotamian Front

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Daur and Tikrit. (Ftg Forc—Feb 1938)
The battle of Ctesiphon and the retreat to Kut. (Mil Eng—Mar-Apr 1938)
XX.—The cavalry at Sharqat. (Ftg Forc—Apr 1938)

Palestine Front

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1915

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1917

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THE SPANISH CIVIL WAR

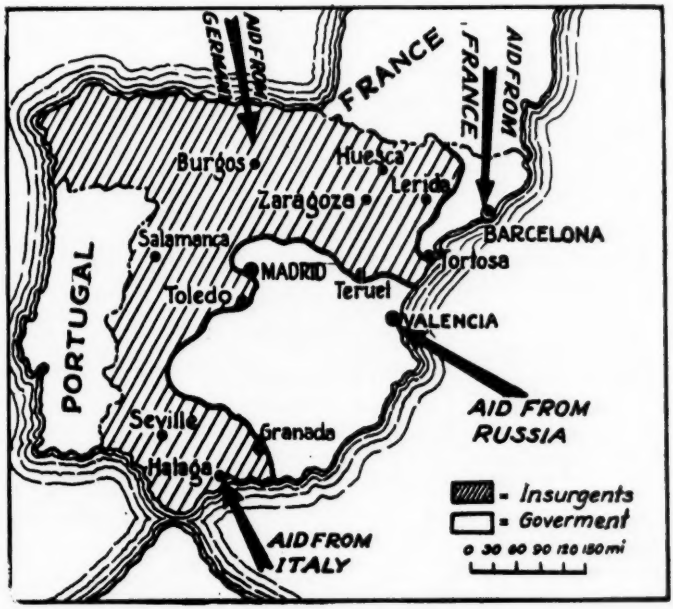


FIGURE 1 — GENERAL SITUATION 1 JUNE 1938

The temporary stagnation that followed the capture of Gijon on 21 October 1937, was interrupted by the Government capture of Teruel on 15 November 1937; this provincial capital was, however, retaken by Franco's forces on 23 February 1938. Quiet again prevailed at the front when, suddenly, on 9 March, Franco launched his overwhelming and spectacular offensive, which with lightning-like rapidity, struck hard, swift blows on a 125-mile front, and in a little over a month captured over 300 towns and villages.

The front line at the beginning of the Insurgent offensive extended roughly from Teruel to Huesca and on to the French frontier. This line formed a Government salient with three principal lines of communication:

(1) The road from Fuentes de Ebro to Alcaniz, down to the coastal plain.

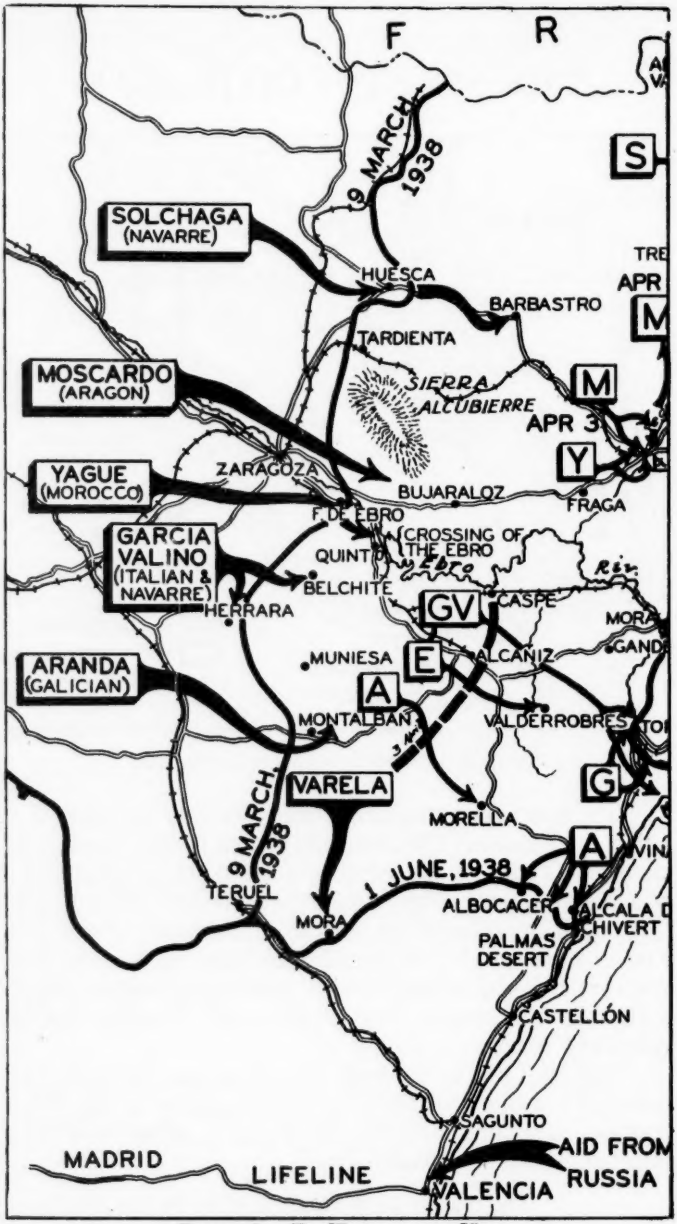


FIGURE 2 — THE DRIVE TO THE SEA

A N C E
AID FROM FRANCE
ANDORRA
CERBERE
GOVT. SUP. BASE
FIGUERAS
SIERRA BUSA
1 JUNE, 1938
GERONA
SOLSONA
GOVT. SUPPLY BASE
BALAGUER
CERVERA
BORJAS BLANCAS
BARCELONA
GOVT. SUP. BASE
TARRAGONA
0 10 20 30 40 50 60 70 80 90 100Km.

(2) The road: Belchite — Caspe.
(3) The highway: Montalban — Alcaniz.

The highways mentioned above were the routes chosen for a three-fold attack upon the Government positions.

For this offensive Franco massed a total of 250,000 men, organized into five army corps, including three Italian divisions of 7,500 each. These forces were assisted by about one thousand guns of various calibers, hundreds of tanks and airplanes, thousands of machine guns and a large supply of munitions.

These corps were initially disposed as follows (Figure 2):

The *Navarrese* Corps, General Solchaga, Commanding.

The *Aragon* Corps, General Moscardó (of Toledo Alcazar fame), Commanding.

The *Moroccan* Corps, General Yague, Commanding.*

A Mixed Corps, General Garcia Valino, Commanding, composed of the 5th Division of Navarre and two Italian Legionnaire Divisions.

The *Galician* Corps, General Aranda (the defender of Oviedo) Commanding, consisting of three Galician divisions.

The offensive was launched at dawn 9 March with an intensive artillery preparation preceding the infantry advance.

Operations South of the Ebro

Yague's Corps (Moroccan) seized the village of Fronton, key to Belchite. Stiff resistance was encountered at Belchite for this town, although without any strategic value, was the scene of one of the few Government victories of the war. The Abraham Lincoln Battalion withstood the brunt of the attack and suffered such heavy losses that it had to be incorporated into the Washington Battalion and the new unit was then designated the Washington-Lincoln Brigade.

The 5th Navarrese Division of Garcia Valino's Corps drove to the southeast in the Herrera sector. General Monasterio's cavalry division went through the gap opened by this drive, cutting off lines of communication and harassing the Government forces in flank and rear. Further to the south, Aranda's Corps (Galician) advanced towards Montalban, in a series of

*One of the most capable Insurgent leaders. Recently reported to be under arrest for insubordination to Franco.—*Editor's Note*

turning movements, outflanking the strongly defended Government positions.

The Insurgent advance progressed rapidly and by the 17th the towns of Caspe and Alcaniz, headquarters and supply base, respectively, of the Government's Army of the East (Levant Army), had fallen into Insurgent's hands. The 5th Navarre Division attacked Caspe simultaneously from the east and west and after a bloody hand-to-hand combat, the Government forces retreated, blowing up the bridges across the Ebro.

Four days after the capture of Caspe, a general advance started north of the Ebro as far as the Pyrennees and coordinated with further advances south of the river, to prevent the massing of the Catalonian Army in the Lérida sector.

Operations North of the Ebro

North of the Ebro, the city of Huesca had been besieged for a long time, the Government forces holding the cemetery and asylum in the outskirts of the city, both located on high ground, from where the highway: Zaragoza — Huesca was swept by Government crossfire.

On 22 March, Solchaga's Galician Corps enveloped the city from the north; the infantry advanced behind a rolling barrage, driving the enemy to the east. Simultaneously, Moscardó's Aragon Corps made contact with General Solchaga's Corps near Tardienta, struck to the east and, by flanking action, captured the fortified position at Sierra Alcubierre.

Crossing of the Ebro

While the Insurgent northern offensive was moving towards Barbastro, General Franco ordered the reduction of the pocket formed by Solchaga's advance and the earlier advance of the Moroccan Corps south of the river. The maneuver conceived was a double envelopment, from fronts at right angles to each other; one roughly west-east, along the highway: Zaragoza — Lerida, the other involving a crossing of the Ebro and an advance north behind the remaining Government positions, south of Sierra Alcubierre. East of the village of Quinto, the left (north) bank of the Ebro was in Government's hands, while the right (south) bank was held by the Insurgents to just beyond Caspe. The Government's left (south) flank rested on the unfordable Ebro, which was in this vicinity, a swift flowing stream swollen

by melting snows, at no place less than three hundred feet in width. All bridges had been destroyed.

General Franco assumed personal command of the operations. On the evening of 22 March, the divisions of Generals Barron and Sanchez (Yague's Moroccans), and army cavalry, were assembled near Quinto, carefully concealed from Government observation. On that night, under enemy fire, a force of about one thousand Insurgents crossed the Ebro in small rafts and gained a foothold in the north bank. By three o'clock in the morning, the pontoon companies had completed two bridges and the first infantry columns crossed the river. At dawn, Insurgent artillery and aviation silenced the Government's machine guns posted on the north bank of the river. Spreading out fanwise, after crossing the river, the bridgeheads were gradually widened forcing the enemy to give ground to the east. In two days the entire Moroccan Corps had crossed the Ebro and was pushing northward to cut the road: Zaragoza — Lerida at Bujaraloz. Contact was gained at that point with Moscardo's Corps and the march on Lerida was started. On the 27th, Yague seized the town of Fraga, situated on the steep banks of the Cinca River, where he met stiff resistance. The road to Lerida was now clear.

In the meantime, the Insurgent advance south of the Ebro continued without interruption. The 5th Navarre Division, with its left (north) flank on the south bank of the river, advanced against strong resistance from Caspe toward Gandesa. This town was desperately defended by the International Brigade, but fell on 2 April, by which date the Insurgent spearhead was about 22 miles from the Mediterranean.

The Capture of Lerida

After having reached the suburbs of Lerida on 31 March, General Yague proceeded immediately to envelop the city from the west and south. To the east, the lines extended along the Segre River.

The Moroccan Corps (Yague), followed the main road to Barcelona, approached the city from the southwest. The Aragon Corps (Moscardó) on its left, advancing from the northwest, made contact with the Moroccan Corps on 2 April, after cleaning up the Segre River valley. At dawn on the 3d, Moscardó attacked from the northeast, while Yague attacked from the west and southwest. Tanks smashed the Government barricades

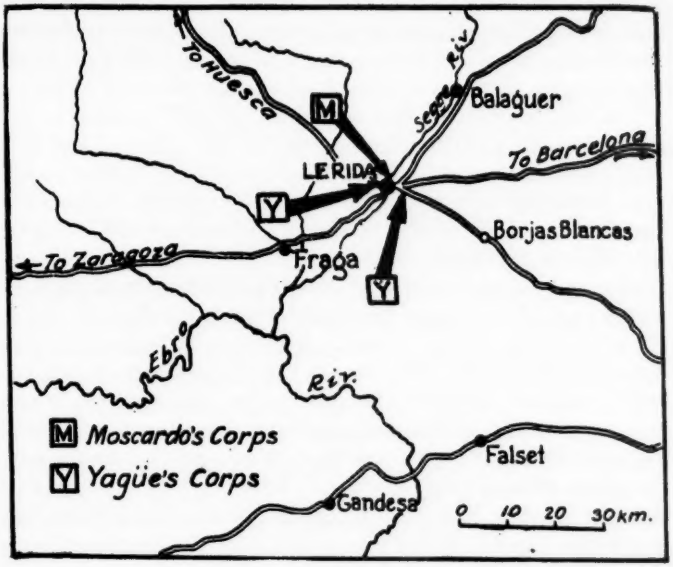


FIGURE 3.—THE CAPTURE OF LERIDA

in the narrow stone streets and the city was captured by the afternoon of the same day. The advance continued along the line of the Segre and Balaguer was captured on the 5th.

Moving swiftly, the great hydroelectric stations at Tremp, chief source of power for the Government factories in Barcelona, were captured on 7 April by the Navarrese (Solchaga) Corps, while the Aragon Corps (Moscardo), seized the plants at San Lorenzo and Camaresa, rendering a big blow to Catalonia's war industries.

South of the Ebro, Garcia Valino captured Gandesa on 2 April and reached the outskirts of Tortosa by the 3d, where the Insurgent advance has met a stonewall defense. On 15 April, Generals Aranda and Garcia Valino blasted their way into Vinaroz and the first grand objective of Franco's eastern campaign had been realized. Government Spain had been split in two sections, and all land communication between Catalonia and the rest of Government Spain had been cut off.

Since that date, the coastal wedge has been gradually widened to the south; but Tortosa, at the head of the fertile Ebro Delta, and key city of Southern Catalonia, has proven

to be a hard nut to crack and in spite of desperate efforts, is still defiantly in Government's hands. The capture of Tortosa would open the Ebro Valley, which offers ideal terrain for the employment of cavalry and mechanized and motorized forces.

Franco's drive to the sea offers valuable lessons to the military student. The offensive was cleverly planned and skilfully conducted. Advancing behind the greatest aerial armada ever employed in this war, there existed perfect cooperation between the land and the air forces. Instead of costly frontal attacks, the Insurgent columns executed a series of rapid and skillful turning movements to drive the enemy out of strongly fortified positions, caught the poorly trained Government militia off balance and drove it back in confusion. The artillery had been following the infantry closely, blasting defensive positions, while airplanes rendered valuable service executing reconnaissance and bombing missions, attacking foot troops and pinch-hitting for the big guns when rapidly advancing columns outdistanced their artillery support. Franco's strategy has consisted in feinting in several places and then smashing through at the right spot. With consummate skill, the Insurgent command has found the weak link in this winding 200-mile front.

FIGURE 4. — INSURGENT OBJECTIVES

The present offensive has now become a five-pronged fork (Figure 4), three drives converging on Barcelona and the other two on Valencia, as follows:

(1) Southeast from the sector near the French border towards Barcelona.
(2) Due east from Lerida.
(3) Up the coastal highway from Tarragona.
(4) South along Vinaroz — Castellon — Valencia.
(5) Southeast along the highway: Teruel — Sagunto.

The situation to date finds Franco in complete communication with all his forces in the field, while Government Spain is split into two sections, between which the only possible communication is by sea or air. Insurgent supremacy has rendered intercommunication almost impossible and it is extremely doubtful, therefore, that enough supplies can pass from Barcelona to either Valencia or Madrid, to enable the Government forces to launch a decisive offensive or even to continue successful defensive operations for an indefinite length of time. Unlike the war in China, we find Insurgent Spain well governed and conquered territory adds to the Insurgents' resources and manpower.

From the beginning of this war, four European nations have taken more or less active participation: to the Insurgents, both Germany and Italy have given diplomatic support as well as men and matériel. To the Loyalists aid has come from Russia and probably also from France. The reasons for this assistance are obvious.

Spain under Franco will become an ally of Italy and Germany and, in the event of war, these two powers will be able to use Spain as an air and naval base. France's communications with North Africa would be seriously threatened. The Balearic Islands would be the bases of submarines, torpedo boats and airplanes that could barricade the Mediterranean. France has 125,000 soldiers in North Africa which she counts on recalling to Europe in event of German aggression, as well as drawing raw materials from her African colonies. But she will have the greatest difficulty in transporting these men and supplies to Europe if Germany and Italy possess submarine bases and air fields in Spain.

An Insurgent triumph may simply add another frontier for France to defend, instead of leaving it unguarded as was the

case in the World War. It is apparent that the French can ill afford troops to protect the southern border, being, moreover, numerically inferior to the Germans. German air pilots installed in Northern Spain could bomb Toulouse, Bordeaux and the munition factories in Northern France.

Soviet Russia might lose prestige in case of an Insurgent triumph, with the help of Nazi Germany and Fascist Italy.

The Insurgent advance has been stopped, according to neutral observers, not only by Government superiority of manpower, but also by freshly acquired arms through the French border, including fast tanks and fighting planes. To counteract this move, Franco has sent urgent appeals to Germany and Italy for more men, guns and planes, for a resumption of his drive into Catalonia.

The Government, utilizing natural defenses, have halted the drives along the Pyrenees and along the Ebro; Franco has shifted his pressure to the southward recently, and is now driving against the key port of Valencia. Should this city fall, Madrid might be reduced without much difficulty. Franco has shown uncanny ability to hit the "soft" spot. Will the next big push be a Teruel-to-the-Sea drive, combined with an offensive down the Mediterranean Coast to Castellon and Valencia?

A cold analysis of facts shows that the Government's superiority in manpower is more than offset by Insurgent superiority in war matériel, organization and leadership. The military situation since March has been particularly in favor of the Insurgents and there can be no denial that things look black for the Government at the present time. Impartial observers believe that Franco's victory is certain, although no one ventures to predict the exact date. When the Insurgents' red and gold banner was triumphantly planted on the shores of the Mediterranean Sea, it was believed that an Insurgent victory was only a matter of days. Nature and weather have enabled the Government Army to re-establish its broken lines and get a breath for the final struggle. The end must come for this bloody war cannot drag on indefinitely. How soon?

THE SINO-JAPANESE WAR

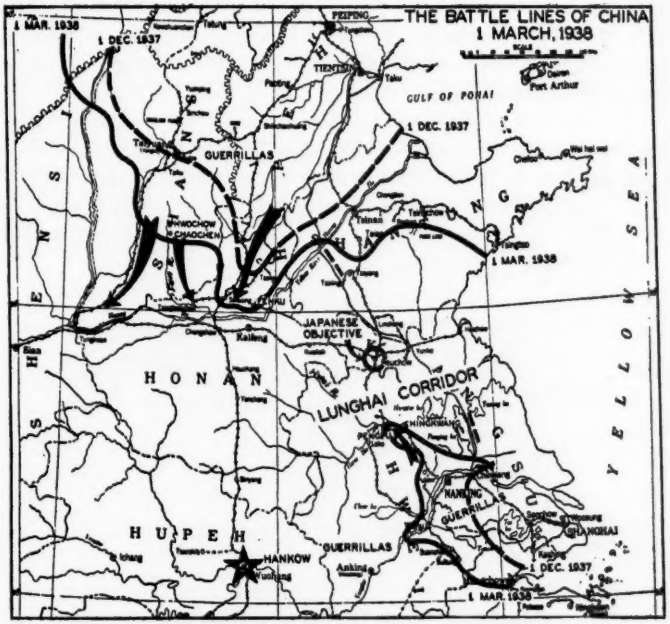


FIGURE 1. — SUCHOW CAMPAIGN SITUATION MARCH 1, 1938

In our March issue, we followed the Japanese operations to the Yellow River line and the campaign for the capture of Suchow, junction point of the Lunghai and Tsin-Pu lines. It will be recalled that the first and main attempt of Japanese strategy was the capture of Suchow by simultaneous advances from the north and from the south. This broadened out to an even better conceived plan — capture of Chengchow and of Puchow in Western Shansi, and then a pincer-like advance on Suchow to cut off and annihilate the Chinese Armies in Shantung province.

This campaign started on January 26, when the Japanese launched their general offensive, with the object of occupying the entire Tientsin-Pukow line; the campaign bogged down and at the end of three months the central Japanese armies operating

northward from the Nanking area were still about eighty miles from Suchow and had been stopped at the Hwai River. The drive from the north was also halted by Chinese guerrilla tactics and lack of sufficient men to defeat the Chinese forces. The gradual slowing of the Japanese advance culminated on April 6th, when the Japanese met their first real reverse at Taierchwang, an ancient brick-walled settlement on the banks of China's Grand Canal.

FIGURE 2.—THE BATTLE OF TAIERCHWANG

On 14 March the Chinese high command learned of the Japanese general offensive southward along the Tsientsin-Pukow railway and, unable to cope with the enemy's mechanized frontal attack, shifted large forces eastward to strengthen the Chinese right flank, leaving a comparatively small force to delay the Japanese advance until the latter's lines of communication became overextended, permitting Chinese flanking attacks from the east.

On 6 April the Chinese under General Li Tsung-jen, one of the leading strategists of the National Revolution of 1926 and 1927, launched a counteroffensive against the weak Japanese left flank and advancing westward encircled the Japanese forces at Taierchwang. Led by the 31st Division, one of the Chinese crack units, the battle raged all day and through the night with about 50,000 Japanese engaging a force at least two or

three times that number. The Japanese were finally smothered by weight of numbers and compelled to retreat, leaving behind many tanks for which they had no fuel and artillery for which they had no shells, with the victorious Chinese pursuing them to the gates of Yiksien, where they were finally stopped by a Japanese stonewall defense.

The Japanese losses at Taierchwang were estimated at between 7,000 to 10,000 killed and 20,000 wounded, while the Chinese losses were two or three times as large.

The Chinese victory smashed Japan's unbroken series of victories for a period of over 44 years and punctured the myth of invincibility of the Japanese armies. It was also China's first great victory of arms.

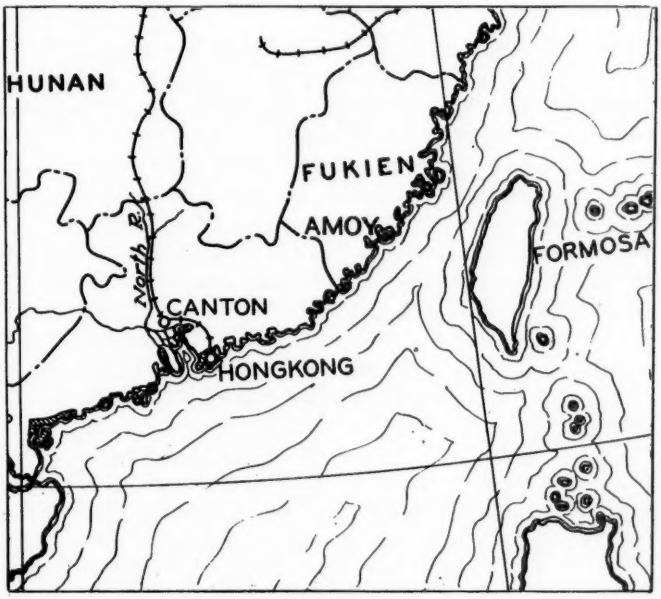


FIGURE 3.—THE CAPTURE OF AMOY

On 10 May the Japanese captured the Island of Amoy after a day long assault by sea, air and land. This operation may be the prelude to a major invasion of South China or merely a strategic foothold.

Amoy City is 140 miles west of Formosa, 300 miles northeast of Canton and 450 miles southeast of Hankow. The occupation of Amoy under the guns of the Japanese Navy was a comparatively easy matter.

The outcome of the war may depend on munitions. The Chinese can fight only as long as they have guns and powder. At the moment, the great Chinese channel for munitions is the Hong-Kong — Canton — Hankow route. The Japanese bomb this railway line almost every day, but they haven't succeeded in putting it out of action.

It seems more likely that the Japanese are merely seeking a base for intensified air attacks on the Canton railway in an effort to cut off military supplies.

The Battle of Suchow

The Taierchwang reverse was not only a stinging blow to Japanese prestige, but it showed the high command that they could not take the Lung-Hai line with the forces available in Shantung. Stalled in their desperate and costly efforts to reach Suchow, Japan concentrated the biggest, most powerful and best equipped force, estimated at over 200,000 men, backed by a heavy complement of artillery, planes and tanks, in a desperate effort to recover the Japanese Army's lost "face." On 18 May four armies* began their final assault on the key city to China's fortified Lunghai railway line, after their advance guards had encircled the city of Suchow. These four armies, split into 16 columns, participated in the final drive, culminating a campaign which had been under way intermittently for over three months.

First Army.—The first army under Major General Kenji Doihara, advanced northward along the Tientsin-Pukow railway from its base at Nanking in two main columns. The left wing moved forward in a fan-like formation along a line from Suhsien on the Tientsin-Pukow line, northeastward through Yungchen and Tangshan. One column of this wing bombarded the Chinese defenses from positions west of Suchow.

The right wing of this army broke through the Lunghai line east of Suchow and joined the left wing of the second army, which was driving toward Suchow from South Shantung Province.

*The Japanese Army has no corps organization. *Editor*

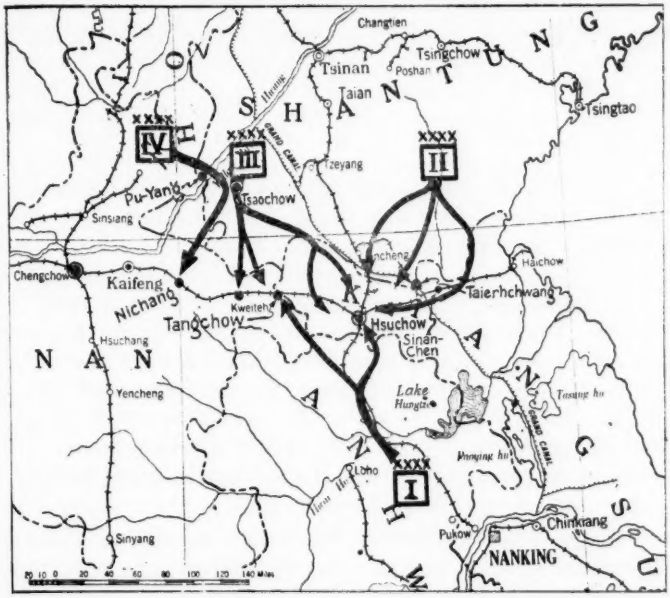


FIGURE 4.—THE CAPTURE OF SUCHOW

The Lunghai line was cut by a "dare-to-die" engineer detachment, which blew up a small bridge west of Sinan-Cheng, 60 miles east of Suchow.

Second Army.—The second army under Major General Rensuke Isogai, was advancing south in several columns along an arc northeast of Suchow. The left end of this arc rested on the Lunghai line south of Tancheng, its center was in Taierchwang and its right on the Tientsin-Pukow line, just north of Suchow. The Chinese unit at Taierchwang was completely surrounded. The Chinese defenses between the Yi-River and the Grand Canal were pierced west of Pi-Hsien.

Third Army.—The third army, under Lieutenant General Shunroku Hata, advancing to the south, outflanked Kweiteh, Chinese divisional headquarters on the Lunghai line west of Suchow, and its advance was bitterly contested by Chinese units north of the railway.

Fourth Army.—This army fanned into the Suchow area from bases north of the Yellow River, engaging Chinese divisions that were withdrawing to the west from Suchow. One

column of this army crossed the Yellow River at Pu-Yang and occupied Tsao-Chow. Part of this force then drove along the highway to Kao-Chen and veered south, cutting the Lunghai line at Nichang, 35 miles east of Kaifeng. Its primary mission was to cut off the retreat of the Chinese forces that were defending Suchow.

The Chinese losses in this campaign have been heavy, but neutral observers believe that despite the swift Japanese advance General Li succeeded in evacuating most of his best troops and equipment to the west, to new bases at Kweiteh, Kaifeng and Chengchow. German advisers of the Chinese Army, headed by General Alexander von Falkenhausen, were said to have planned and supervised the retreat, leaving to some 100,000 provincial troops the task of covering the retreat of the main Chinese Army, selling their lives as dearly as possible. Rear guard troops were instructed to discard their uniforms and retreat in small groups to villages on Lake Hungtze, southeast of Suchow, to be outfitted as plain clothes guerrillas.

As their next move, the invaders intend soon to advance west from Suchow, and capture Chengchow, the important junction city where the Peiping-Hankow railroad crosses the Lunghai. From Chengchow a drive would then be started south toward Hankow, which is both the Chinese government headquarters, since the fall of Nanking, and the training center for China's new armies. Simultaneously with the thrust from Chengchow other forces would move from Wuhu to attack Hankow. Seven armies estimated to total more than 600,000 men have been organized for this great drive against China's provisional capital (Figure 4), by the capture of which Japan expects to "bring China to its knees."

The capture of Suchow gives the Japanese control over the whole of the Tientsin-Pukow railway running roughly from north to south for a length of 600 miles. It has a real potential value because the Japanese have now secured a new line of communication that may allow them to make a sustained military effort for the capture of Chengchow, important military railway center and Hankow, provisional capital of China, which seems now to be the goal of Japan's armies. They are now in position to consolidate their gains in China and unite their forces operating from the north and the south on the Tientsin-Pukow railroad.

COMMENTS

Japan's operations in this war have been in many cases poorly coordinated. The Japanese have shown weaknesses which are increasingly obvious.

The first is Japan's lack of a really unified command in China proper and over the armed services. Some observers believe that there has been considerable jealousy and some friction between the army and the navy in various of the war operations; most observers are agreed that Japan's failure to appoint a supreme commander in charge of all Japanese forces in Central and North China and in Manchukuo has militated against a cohesive effort.

The second and more important weakness has been inability of the Japanese to evaluate properly the strengths and weaknesses of their enemies.

Some observers believe that there are rents in Japan's economic fabric which are beginning to widen under the strain of continued war. Japan is now said to be purchasing raw materials and other war goods abroad at a rate of thirty to forty-five million dollars monthly, and some authorities consider it not improbable that she may face a rather serious financial situation within the next three months.

Japanese domestic reserves of raw materials and war munitions which observers estimated last July as sufficient for a year of war, have been exhausted and Japan must now rely largely upon imported products to supply her factories, which are working at top speed to keep her armies supplied.

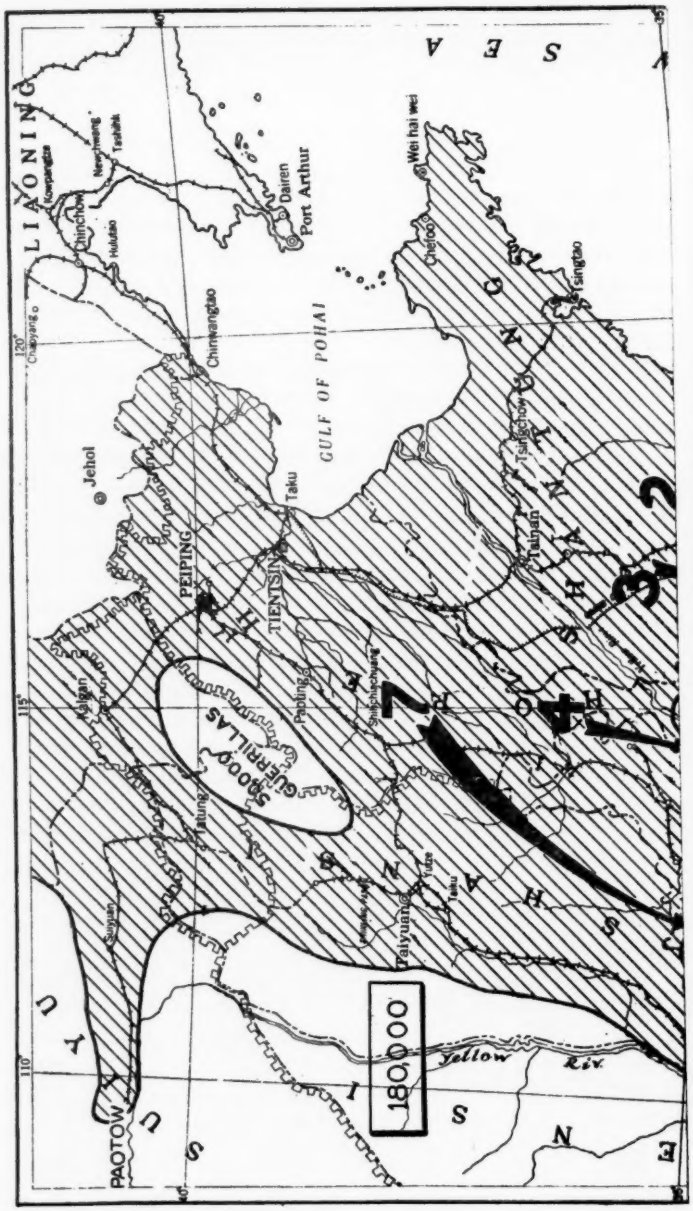
Japan feels, therefore, that this war must be brought to an end as quickly as possible and she has taken the following measures to accomplish this aim:

(1) Approval of a National Mobilization Bill, making the Premier a virtual dictator of Japan's productive sources and manpower, which has already gone into effect.

(2) Reorganization of the Japanese Army and Navy High Command, details of which are given elsewhere in this Review.

(3) Drastic cabinet reorganization, wherein two powerful generals (Ugaki and Araki) and a towering figure in the world of finance (Harvard educated, Seihin Ikeda) have assumed the portfolios of foreign affairs, education and finance, respectively, committed to a more vigorous prosecution of the war in China.

When Japan embarked upon this "incident" at the Marco Polo Bridge on 7 July 1937, Tokyo was confident that her


LIAONING
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ANHUI
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Wei hai wei
Chefoo
Tsingtao
Chinchow
Newchwang
Yingkow
Hulutao
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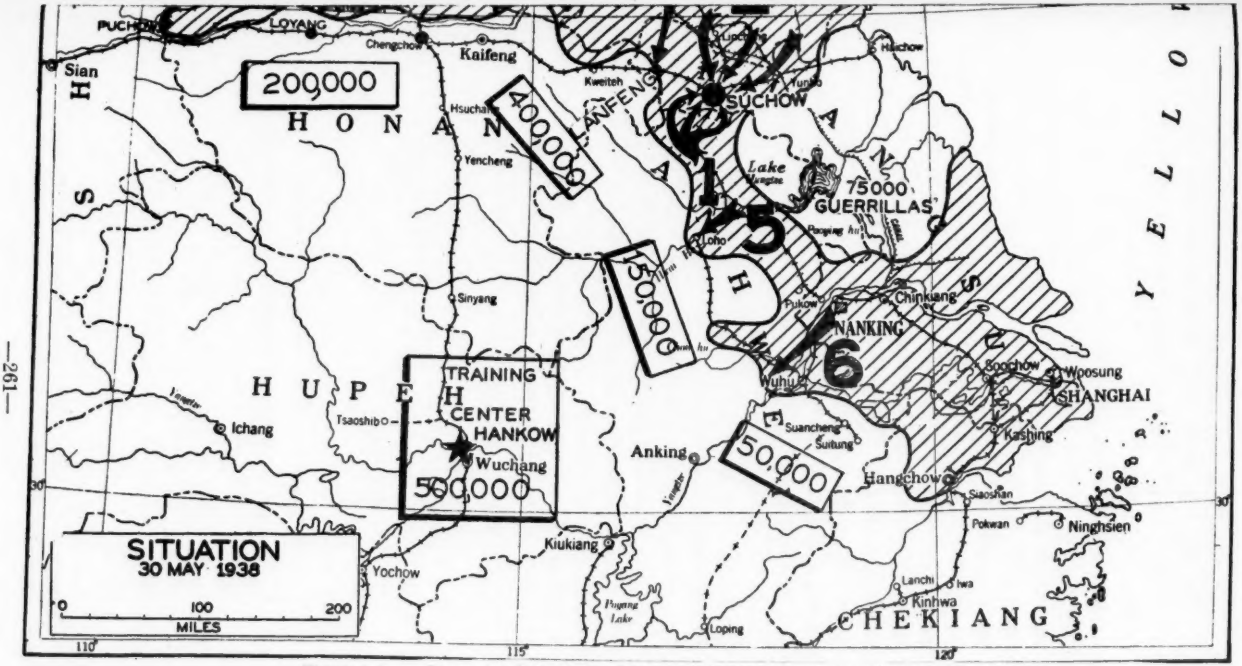

FIGURE 5. — PLAN OF CAMPAIGN AGAINST CHENGCHOW AND HANKOW

troops could penetrate the mainland provinces as far as they wished. During the early part of the war that confidence seemed to be justified. The Rising Sun banner rose successively over Peiping, Tientsin, Shanghai, Nanking and Tsinan, and moved down the strategic railway lines. But in the last few months there has been a change. The war was not over by Christmas as Japan expected. When she launched the Suchow campaign on 26 January, she thought that this important railway junction would be quickly captured. Suchow proved no easy nut to crack and the campaign instead of a few days, lasted over three months and has proven to be a costly success. The main body of China's army escaped from the Suchow trap, just as from Shanghai and Nanking and once more Japanese strategy has failed to bring about the destruction of China's armies. Now Japan is embarking upon another campaign to annihilate Chiang Kai-shek and dominate China by capturing Hankow, a mere 300 miles as the crow flies.

The farther Japan's westward penetration goes the greater the number of men that are needed since every town and every mile of railroad captured must be garrisoned. At the same time, the deeper the Japanese go into China's interior the farther they get from their sources of supply and the more vulnerable their lines of communication. Will Japan guess right this time or will Suchow, the Tannenberg of the Far East, as General Terauchi likes to call it, instead of a Sedan, prove to be a Borodino?*

*Napoleon's costly victory over the Russians, 6 September 1812, undoubtedly the bloodiest of his great battles.

THE COVER

By request of a great many of our subscribers we are publishing an explanation of the colored cover which first appeared on the December 1937 issue of the Quarterly. As long as it meets with the general approval of our supporters we will continue to use the same cover.

The water color drawing is one of several by H. A. Ogden which illustrated the official publication: The Uniform of the Army of the United States, Prepared and Executed by the Quartermaster General of the United States, Under Authority of the Secretary of War.

The uniforms depicted are the full dress of the year 1888.

In the picture Lieutenant General Sheridan and some of his staff are represented. The horse trappings are those which were used by General Sheridan. From left to right the remaining figures in the picture represent: a cavalry officer; Lieutenant Colonel Batchelder, an officer of the General Staff Corps; an officer of light artillery; Colonel Michael Sheridan, Assistant Adjutant General. Michael Sheridan is a brother of General Sheridan.

Answers to Questions on the World War

1. 4,800,000 of whom 4,000,000 served in the Army.
2. 200,000.
3. 42.
4. (a) July 1918: 306,000 soldiers carried to Europe.
   (b) June 1919: 364,000 brought home to America.
5. (a) New York.
   (b) Half of the troops were landed in England and half landed in France.